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This book is intended to be a reference material for researchers and implementers of the community-based monitoring system (CBMS) methodology. It provides a historical overview of the development of the CBMS methodology and the evolution of its uses as a tool for poverty and policy analysis and impact monitoring. The book also draws key lessons from the field on the various applications and potentials of CBMS for examining and addressing emerging development concerns i.e. poverty reduction, vulnerability risk mapping in the context of climate change, monitoring impacts of global and economic shocks, providing social protection for the informal sector, and addressing youth unemployment and entrepreneurship, financial inclusion, gender and development, and localizing the MDGs/SDGs among others, taking the case of selected CBMS sites in Asia, Africa and North/Latin America.

The CBMS is intended to be a tool that aims to provide a regular source of information for policymaking, program design, and impact monitoring. It is designed to support agenda of national development plans and complement existing national statistical systems on poverty monitoring by addressing information gaps at the local level while empowering local governments and communities in the context of their roles and accountabilities in the decentralization process.

JEL: C800; C810; I300; I310; I320; O200

Keywords: Census, Indicators; Household Data; Poverty; Basic Needs; Poverty Measurement, Multi-Dimensional Poverty; Development Planning; Vulnerability Risk Mapping; MDGs; SDGs; local governance
The adoption of the Community-Based Monitoring System (CBMS), a diagnostic tool initially developed under the Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) Program for tracking the micro level impacts of macroeconomic adjustment policies on vulnerable groups in the society, in many countries over the years has generated evidence in its efficiency and critical contribution in addressing gaps and challenges in the design, targeting, and implementation of poverty reduction, social protection and other development programs.

This publication aims to provide information on the key features of the CBMS being promoted by the CBMS Network, the process and instruments for its implementation. Another objective is to demonstrate how the CBMS can be adapted in local context of countries where it is implemented, and how it can be used for evidence-based research and policy action on various thematic and emerging development concerns.

The book is divided into four parts including a comprehensive overview of the CBMS methodology and tools for data collection, processing, and poverty mapping, and the context of its development, implementation and use for different thematic concerns taking the case of selected countries in Asia, Latin and North America, and Africa. The country chapters contained in the book draws heavily from the research papers, technical reports and conference presentations that have been produced by local CBMS research teams from CBMS Network partner institutions in said countries. The documentation of evolution of CBMS in the CBMS sites aims to serve as reference for future further research, and for possible uptake or roll out of implementation of CBMS to more municipalities/cities within these countries as well in other countries and regions where the use of CBMS has not yet been explored or fully maximized.

Chapter 1 presents an overview of the CBMS methodology, its objectives and expected outcomes, and its general uses. Chapter 2 provides a documentation of the context of implementation and applications of CBMS in Asia, particularly, in the Philippines, Indonesia, Cambodia, Pakistan, Lao PDR, Vietnam, and Bangladesh. Chapter 3, on the other hand, features the adoption of CBMS in selected sites in Latin and North America, particularly, in Argentina, Bolivia, Nicaragua, and Haiti. Chapter 4 focuses on the development and uses of CBMS in Africa, particularly, taking the case of South Africa, Tanzania, Niger, Nigeria, Botswana, Ethiopia, Ghana, Kenya, Burundi, Togo, and Uganda.

Each country-specific section is further subdivided into four sections. The first section introduces the context and rationale for the implementation of CBMS in each country which includes the following subsections: background, local government structure, and review of existing monitoring systems. Meanwhile, the second section presents the country specific design of the adoption of the CBMS methodology in terms core set of poverty indicators, data collection process (data collection instruments, identification and training of local enumerators and supervisors, and study area/s and field operations), data processing, data validation, and database management. Lastly, the third and fourth sections feature the uses of CBMS, and the strategies for institutionalization of CBMS, respectively.
ACKNOWLEDGMENT

The development and expansion of the use of the community-based monitoring system (CBMS) methodology since 1993 to present is a product of many years of research work, scientific collaboration and joint advocacy and commitment of key stakeholders for more evidence-based policymaking and acceleration of poverty reduction initiatives while empowering local communities in the process of sustainable and inclusive development.

The preparation of this publication by the CBMS Network Team was made possible with the valuable research contributions and administrative documentation of CBMS initiatives by CBMS Network partner institutions in the different regions globally where CBMS has been deployed for various thematic concerns. Among these are the Instituto de Economía – Universidad Nacional del Centro de la Provincia de Buenos Aires in Argentina; Bangladesh Academy for Rural Development in Bangladesh; Fundación ARU in Bolivia; the University of Botswana; Centre Universitaire de Recherche pour le Développement Économique et Social (CURDES) in Burundi; the Ministry of Planning in Cambodia; the Arsi University in Ethiopia; the Council for Scientific and Industrial Research (CSIR) - Science and Technology Policy Research Institute (STEPRI) in Ghana; the Centre Haïtien d’Études et de Recherches Internationales, Économiques et Sociales (CHERIES) in Haiti; the SMERU Research Institute in Indonesia; the University of Nairobi, in Kenya; the Department of Statistics and Ministry of Planning and Investment in Lao PDR; the NITLAPAN Universidad Centro Americana in Nicaragua; the Observatoire National de la Pauvreté et du Développement Humain Durables (ONAPAD) in Niger; Department of Agricultural Economics, University of Nigeria Nsukka; Research Analytics International (Private) Limited in Pakistan; the Center for Rural Development and Poverty Alleviation, University of Venda in South Africa; the Institute of Rural Development Planning (IRDP) in Tanzania; Centre de Recherche et de Formation en Économie et Gestion (CERFEG), Université de Lomé in Togo; Development Research and Training (DRT) in Uganda; and Socio-Economic Development Centre (SEDEC) in Vietnam.

The milestones in the development of CBMS methodology and tools for data collection, processing and applications for more informed policy analysis over these years would not have been possible were it not for the significant trust and financial support of the International Development Research Centre (IDRC) of Canada for many years since its conception under the MIMAP initiative until the establishment of the CBMS International Network Office at De La Salle University-Angelo King Institute for Economic and Business Studies (AKI) in Manila, and of the CBMS global research grants program under the Poverty and Economic Policy initiative (now known as the Partnership for Economic Policy). The CBMS Network Team is also grateful for the valuable support of the Department for International Development (DFID) of the United Kingdom in the development of the CBMS Accelerated Poverty Profiling (APP) and for enabling the pilot test and expansion of CBMS initiatives in more countries across the globe.
CBMS and PEP

This publication is prepared by the Community-Based Monitoring System (CBMS) Network Team of De La Salle University-Angelo King Institute for Economic and Business Studies (DLSU-AKI) as one of the outputs of its collaboration with the Partnership for Economic Policy (PEP) in the implementation of the PEP-CBMS global research grants program funded by the International Development Research Centre (IDRC) and UK Department for International Development (DFID or UK Aid) through the two PAGE initiatives (2012-2016, 2016-2020). It synthesizes the various CBMS research outputs on the development and applications of the CBMS methodology in local contexts produced and supported by PEP in 22 countries since 2003. The CBMS that were adapted and implemented in local contexts in these countries for key emerging policy issues and development concerns follow the CBMS design that has been pioneered in the Philippines under the Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) in the Philippines since 1993.

Partnership for Economic Policy

The Partnership for Economic Policy (PEP) is an international non-profit organization that connects researchers and research institutions around the world, empowering local experts to define and promote local policy solutions for sustainable development. PEP’s unique capacity building model is fostering a new generation of policy-aware scientific knowledge producers and thought leaders in developing countries. PEP policy research projects use four main methodologies: (1) community-based monitoring system (CBMS), (2) macro-micro development policy modeling, (3) microeconomic non-experimental analysis, and (4) experimental research. More information about PEP and PEP research can be found on its website (www.pep-net.org).

PEP-CBMS Research Program

The PEP-CBMS research grants program started as part of the development of the Poverty and Economic Policy (PEP) Network Project. PEP was pioneered and jointly undertaken by the DLSU-AKI based in Manila and Université Laval based in Canada, with support from IDRC. The PEP Project is an offshoot of the earlier IDRC-Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) Program which aims to build local capacities in developing countries for more evidence-based policy making particularly in the context of poverty reduction.

Officially launched in 2002, the PEP-CBMS grants program provides financial and scientific support to partner institutions in developing countries for the development and implementation of community-based monitoring system in local context. From 2003 to present, PEP has supported the pilot test and/or expansion of CBMS initiatives in over 20 developing countries covering sites in Asia, Africa, and North and Latin America.

The scientific support, research and capacity building activities of the PEP-CBMS grants program are spearheaded and implemented by the CBMS Network Team of DLSU-AKI. Additional technical guidance is
provided by the CBMS Thematic Research Group (formerly referred as CBMS Steering Committee) composed of international experts in policy analysis, statistical techniques and applications, and gender analysis.

**CBMS Network Team**

The CBMS Network Team (formerly known as the MIMAP-Philippines Project Management Office) has provided technical support to local and international partner institutions since 1999. This support focuses on the development and applications of the CBMS methodology and tools for various thematic concerns including poverty monitoring and analysis, gender responsive planning and budgeting, vulnerability risk mapping, monitoring child labor, and monitoring the MDGs/SDGs among others.
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.sourceforge CBMS Network Page
.sourceforge CBMS International Network
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Chapter 1
The CBMS Methodology

1. Overview

1.1. Background

The community-based monitoring system (CBMS) is a tool developed in 1993 in response to the need for a regular source of necessary disaggregated information to be able to track poverty and provide evidence on the impacts of macroeconomic adjustment policies on the welfare of households and vulnerable groups of population. Under the Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) research initiative in the Philippines, following a review of existing monitoring systems, Reyes designed the CBMS that would fill in crucial data gaps for identifying and diagnosing the nature and extent of poverty, for formulation of appropriate policies and interventions, and facilitate impact monitoring (Reyes, 1994).

From the 1980s to the 1990s, various structural and stabilization policies are being implemented by governments, including the Philippines, to correct imbalances in the economy. These adjustment policies are expected to have costs and varying effects across different groups of population given existing capacities. Different views on the implications of macroeconomic adjustments, with its deflationary nature causing depressed employment, lower real income and higher poverty incidence, cannot be proven without information on the actual impacts of these policies on the population particularly the vulnerable groups.

An earlier study of Lamberte, Llanto, and Orbeta (1991), under the Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) research program, points out to the lack of a monitoring, information and feedback system to assess the impact of macroeconomic adjustment policies at the micro level. While there are timely data on macro variables, there is no systematic and regular collection of information on the "human dimension". Only macro indicators pertaining to certain aspects of welfare are available, and these are aggregated at the national level. Studies (Florentino, 1992; Reyes and Alba, 1994) highlighted the limitations of available household/individual welfare data from national surveys and administrative reporting systems of various national government agencies particularly in terms of coverage, differences in reference periods, frequency of data collection, and timeliness of processed data. Moreover, while concerned government departments and some non-government organizations have initiated their own local monitoring systems, most of these are program specific and are coterminous with projects, and are not tied to local government planning processes. These inadequacies make it difficult to come up with a comprehensive profile of the population, especially of population subgroups, in terms of their welfare status. It was under this context that the CBMS was conceptualized and pilot tested in the Philippines.

Similarly, in other parts of the world, the lack of necessary data for fostering poverty reduction
strategies and programs is echoed particularly in least developed countries (LDCs). Country studies (see for example Reyes and Due (2009); Tuan Anh, (2003; 2007); Akhmdai, et al. (2005); Nayab, (2005); Asante and Odoro (2006); Islam (2006); Attanasso, et al. (2010); Konate, Somda and Kone (2011)) have provided the rationale and evidence on the feasibility to implement a local monitoring system following the CBMS methodology to fill in this information gap for more informed policy particularly in the context of accelerating poverty reduction agenda.

Overtime, the usefulness of the CBMS as a valuable tool for more informed policy and decision making became more evident amidst emerging development concerns. Country studies have pointed out how useful CBMS is for capturing the required micro level and disaggregated data to examine the impacts of shocks on poverty i.e. natural hazards such as El Nino phenomenon (Mandap and Ilarde, 1999; Reyes and Mandap, 2011), financial crisis financial crisis (Reyes and Mandap 1999; Reyes, Sobreivinas, and De Jesus, 2010; Achike and Ichoku, 2011); Yusrina and Akhmadi, 2013; Nymongo, Sereti, et al., 2011), food and fuel crisis (Reyes, Sobreivinas, and De Jesus, 2013; Asante, Tagoe and Boakye, 2009; Sothearith and Net, 2009), and climate change (Reyes, Quilitis, et al., 2015; Reyes, Bancolita, Calubayan, and Leyso, 2014). The important role of CBMS is also recognized for generating the required data disaggregation for monitoring the progress at sub-national level of the achievement of the millennium development goals (Asante and Tagoe (2007); UNDP (2007); Wamwea (2010)), and to localize the core principle of “leaving no one behind” in achieving the sustainable development goals (Reyes, et al., 2018; Paavani, 2019; Kagugube, et al, 2019, Ketema, et al, 2019, Siphambe, et al. 2019; Romero, Flores, et. Al., 2019; Quaye, et al., 2019; Murigi, Macho, Kariuki, and Muthoni, 2019; Nsabimana, et al., 2020).

Some of these specific applications of CBMS are discussed in detail in succeeding chapters of this book in the context of selected countries in Asia, Africa, and Latin America.

1.2. Key Objectives of the CBMS

The CBMS generally aims to provide policymakers and program implementers with a good information base to monitor the impacts of various adjustment policies on households and the vulnerable groups of population, and to track poverty overtime. A good information base is qualified as one that generates reliable and useful statistics while at the same time is accessible and sustainable for its intended users.

The CBMS is intended to complement existing national statistical systems in generating data, particularly local level statistics that is useful for more informed policy. Studies showed the lack (if not absence) of necessary data that can aid policymakers and program implementers particularly at lower levels of administration or governance structure. CBMS was designed to fill in this gap.
In particular, the CBMS fills in data gaps particularly in terms of granularity, regularity, availability, and accessibility of data. This is done while empowering communities in the process of data collection, processing and use of the data generated by the system for sustainability purposes.

Specifically, the CBMS aims to provide necessary disaggregated data that enables: (1) diagnosis of the nature and extent of poverty; (2) determination of causes of poverty; (3) formulation of appropriate policies, programs and interventions; (4) better Program Targeting; and (5) impact monitoring.

The CBMS is also designed to generate panel data that would facilitate a more comprehensive assessment of the effectiveness of policies and programs being implemented. It is also intended to be a tool that can be used to monitor the impacts of various policy shocks.

CBMS also responds to the need for support mechanisms and data requirements for the implementation of the decentralization policy. With local governments at the forefront of delivery of basic social services, and in mainstreaming global and national development commitments in local plans and budgets, the CBMS aims to be a tool that can facilitate greater efficiency, transparency and accountability in the use of resources.
1.3. Milestones

From its pilot implementation in the Philippines, CBMS work has expanded to other developing countries. Drawing from the lessons from the pioneer research on CBMS in the Philippines under the MIMAP Program of the IDRC, CBMS work has been initiated in the context of poverty reduction strategies in other developing countries in Asia (i.e. Vietnam, Bangladesh, Lao PDR, Sri Lanka), and in Burkina Faso, Senegal and Ghana.

Under the Poverty and Economic Policy (PEP) research program of the IDRC from 2002-2016, the application of CBMS methodology has expanded in Bangladesh, Vietnam, Lao PDR and the Philippines, and was also introduced in Cambodia, Indonesia, Pakistan, Ghana, Kenya, Peru, Benin, Nigeria, South Africa, Tanzania, and Zambia.

With additional support from the UK Department of International Development (UK DFID) and continued support of the IDRC from 2013 to 2020 the CBMS methodology has been applied to generate necessary disaggregated data to conduct micro level analysis of policy issues relating to youth unemployment and entrepreneurship, providing social protection to informal sector, financial inclusion, women empowerment and gender disparities in labor and agriculture. This was made possible with the pilot implementation of the CBMS in selected sites in Argentina, Bolivia, Haiti, Ethiopia, Niger, Togo, and Uganda.

Table 1: Coverage of CBMS Implementation, 2000-2020

<table>
<thead>
<tr>
<th>Countries</th>
<th>Household s</th>
<th>Population</th>
<th>Coverage</th>
<th>Year</th>
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<tbody>
<tr>
<td>Philippines</td>
<td>10.8M</td>
<td>-</td>
<td>Provinces: 78 (36 of which are province-wide) Municipalities: 1,108 Cities: 113 Barangays: 31,379</td>
<td>2000 to present</td>
</tr>
<tr>
<td>Vietnam</td>
<td>42,937</td>
<td>-</td>
<td>Provinces of Ha Tay, Ninh Binh, Yen Bai, Quang Ngai, and Lam Dong</td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td>9,000</td>
<td>40,000</td>
<td>Province of Yen Bai</td>
<td>2004, 2005</td>
</tr>
<tr>
<td></td>
<td>3,700</td>
<td>16,000</td>
<td>Provinces of Ha Tay</td>
<td>2004</td>
</tr>
<tr>
<td>Country</td>
<td>Population</td>
<td>Area (km²)</td>
<td>Commune Details</td>
<td>Selected Communes</td>
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<tr>
<td>------------</td>
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<td>---------------------------------------------------------------------------------</td>
<td>-------------------</td>
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<tr>
<td>Bangladesh</td>
<td>4,987 / 4,990</td>
<td>22,656 / 22,682</td>
<td>Daudkandi Upazila Union of Mohammadpur</td>
<td>2016</td>
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<td></td>
<td>1,596 / 3,761</td>
<td>10,972 / 21,411</td>
<td>Daudkandi Upazila Union of Mohammadpur</td>
<td>2004</td>
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<td></td>
<td>545</td>
<td>3,102</td>
<td>Choudagram Upazila Union of Sreepur</td>
<td>2002</td>
</tr>
<tr>
<td>Benin</td>
<td>12,337</td>
<td></td>
<td>13th District of Cotonou 6 sectors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>823</td>
<td></td>
<td>District of Adogbe 3 villages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,026</td>
<td></td>
<td>District of Mededjonou 9 villages</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>1,132</td>
<td></td>
<td>Prek Norin, Prek Luong, Samraong Knong Communes Sdei Leu and Bak Amraek; Svay Chrum and Reach Dounkeo; Samraong Outrea</td>
<td>2011</td>
</tr>
<tr>
<td></td>
<td>11,776 / 12,822</td>
<td>57,247 / 61,432</td>
<td>Province of Kratie Snuol District</td>
<td>2010</td>
</tr>
<tr>
<td>Country</td>
<td>Urbanization</td>
<td>Population</td>
<td>Area</td>
<td>Province/Region</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
<td>------------</td>
<td>------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>2,235</td>
<td>8,360</td>
<td></td>
<td>Municipality of Rio Blanco</td>
</tr>
<tr>
<td>Burundi</td>
<td>4,839</td>
<td>21,501</td>
<td></td>
<td>Provinces of Cibitoke and Kirundo</td>
</tr>
<tr>
<td>Botswana</td>
<td>2,693</td>
<td>6,842</td>
<td></td>
<td>Kweneng District</td>
</tr>
<tr>
<td>Ghana</td>
<td>2,713</td>
<td>10,647</td>
<td></td>
<td>Atebubu-Amantin District</td>
</tr>
<tr>
<td>Ghana</td>
<td>6,730</td>
<td>25,433</td>
<td></td>
<td>Dangme West District</td>
</tr>
<tr>
<td>Kenya</td>
<td>3,479</td>
<td>9,482</td>
<td></td>
<td>Gikindu Location, Murang’a County</td>
</tr>
<tr>
<td>Kenya</td>
<td>4,163 / 4,247</td>
<td>11,810 / 12,036</td>
<td></td>
<td>Muthithi Location, Murang’a County</td>
</tr>
<tr>
<td>Country</td>
<td>Selected areas</td>
<td>2011</td>
<td>2016</td>
<td>2018</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Tana River District</td>
<td>2,748</td>
<td>16,363</td>
<td>Sub-locations of Walesorrrea, Laini, and Tarasaa</td>
</tr>
<tr>
<td></td>
<td>Selected areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tana River District</td>
<td>2,748</td>
<td>16,363</td>
<td>Sub-locations of Walesorrrea, Laini, and Tarasaa</td>
</tr>
<tr>
<td></td>
<td>Sub-locations of Walesorrrea, Laini, and Tarasaa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Togo</td>
<td>Danyi and Tsévié Townships</td>
<td>4,540 / 4,541</td>
<td>11,977</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Tokoin-Wuiti District and Cantons of Dalave and Gblainvie</td>
<td>7,436 / 7,845</td>
<td>15,509</td>
<td>-</td>
</tr>
<tr>
<td>Uganda</td>
<td>Katakwi District</td>
<td>5,201</td>
<td>24,314</td>
<td>Akoboi and Katakwi</td>
</tr>
<tr>
<td></td>
<td>Katakwi Town Council and Kapujan Subcounty</td>
<td>4,359</td>
<td>20,893</td>
<td>-</td>
</tr>
<tr>
<td>Argentina</td>
<td>Tandil</td>
<td>1,124</td>
<td>3,468</td>
<td>San Cayetano and Villa Aguirre</td>
</tr>
<tr>
<td></td>
<td>Olavarria</td>
<td>4,173</td>
<td>12,106</td>
<td>Sierra Chica, Sierra Bayas, Colonia San Miguel, Villa A. Fortabat, Villa Mi Serrania, Hinojo, and Colonio Hinojo</td>
</tr>
<tr>
<td>Bolivia</td>
<td>Urundel and Tandil</td>
<td>2,746</td>
<td>10,036</td>
<td>San Cayetano, Selvetti-Palermo, and Villa Aguirre (Tandil)</td>
</tr>
<tr>
<td></td>
<td>Province of Vallegrande, Santa Cruz</td>
<td>2,121</td>
<td>6,000</td>
<td>Municipality of Vallegrande</td>
</tr>
<tr>
<td></td>
<td>Department of Santa Cruz</td>
<td>847</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pampagrande, Matalar, and Los Negros</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Population</td>
<td>Urbanization</td>
<td>Location Description</td>
<td>Year</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>------</td>
</tr>
<tr>
<td>Haiti</td>
<td>1,720</td>
<td>7,643</td>
<td>Municipality of Concepción, Ñufo de Chávez</td>
<td>2014</td>
</tr>
<tr>
<td></td>
<td>666 / 1,077</td>
<td>4,016</td>
<td>Cite Canada and Chevalier</td>
<td>-</td>
</tr>
<tr>
<td>South Africa</td>
<td>3,630</td>
<td>15,430</td>
<td>Limpopo Province</td>
<td>Mutale Ward 1 and Greater Tzaneen Ward 1</td>
</tr>
<tr>
<td>Tanzania</td>
<td>1,305</td>
<td>5,191</td>
<td>Bukoba Municipal Council and Muleba District Council</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4,901</td>
<td>24,213</td>
<td>Dodoma Municipal District</td>
<td>K/Ndege Ward and Nala Village</td>
</tr>
<tr>
<td>Pakistan</td>
<td>4,426</td>
<td>16,728</td>
<td>Districts of Rawalpindi and Mandi Bahauddin</td>
<td>Selected Union Councils</td>
</tr>
<tr>
<td></td>
<td>1,001</td>
<td>21,417</td>
<td>Districts of Rawalpindi and Toba Tek Singh</td>
<td>Dhamyal and GB42 Union Councils</td>
</tr>
<tr>
<td>Nigeria</td>
<td>4,720</td>
<td>20,715</td>
<td>Community of Edem, Nsukka Akpa, Ozzi, Edm-Ani, Ibagwa Ani, and Okpuje</td>
<td>2009</td>
</tr>
<tr>
<td>Niger</td>
<td>1,434</td>
<td>10,974</td>
<td>Commune of Kanambakatché</td>
<td>Villages of Kanambakatché, Dan Kobi, and Zaroumeyè</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>3,382</td>
<td>23,003</td>
<td>Provinces of Saravan and Savannakhet</td>
<td>Sepon and Toomlan</td>
</tr>
<tr>
<td></td>
<td>1,591</td>
<td>11,236</td>
<td>Provinces of Saravan and Savannakhet</td>
<td>Sepon and Toomlan</td>
</tr>
<tr>
<td></td>
<td>1,585</td>
<td>10,970</td>
<td>Provinces of Saravan and Savannakhet</td>
<td>Sepon and Toomlan</td>
</tr>
<tr>
<td></td>
<td>458</td>
<td>2,815</td>
<td>Provinces of Saravan and Savannakhet</td>
<td>Sepone and Tumlante</td>
</tr>
</tbody>
</table>
2. The CBMS Methodology

The community based monitoring system (CBMS) is an organized process for data collection, processing, poverty mapping, validation and use of data for various development concerns. The CBMS methodology designed by Reyes since 1993 and espoused by the CBMS Network has the following key features:

1) **CBMS entails a census of all households.** CBMS data collects data on demographic and socioeconomic characteristics of households and individuals in a particular village, city, municipality, or province. Data collection is done through a household census (not a sampling method) and is administered by trained local enumerators using a structured household profile questionnaire covering all households and its members in a barangay/city/municipality/province for the census reference period.

2) **CBMS is LGU-Based while promoting community participation.** CBMS is designed to be implemented and maintained by local government units for purposes of its intended use and sustainability. This is also to foster a sense of ownership and accountability on the data generated. LGUs and other stakeholders in the municipality/city/barangay are involved and takes an active role in the different stages of the CBMS process. CBMS is locally owned by the communities, with local governments taking the lead in data collection and processing.

3) **CBMS taps existing local personnel and community volunteers as monitors and enumerators.** To make the system more cost effective and efficient, key LGU personnel i.e. municipal/city/provincial planning and development offices and focal persons at the barangay level (i.e. village/community development councils and to the extent possible community based organizations and volunteers) are trained and mentored on the different components of the CBMS process and on the use of the CBMS tools for implementation. Community volunteers i.e. students residing in the LGU who are familiar with the community, are also tapped as part of the pool of local enumerators.
4) **CBMS monitors a core set of multidimensional poverty indicators and is flexible enough to accommodate community-specific indicators.** It generates indicators that capture both income and non-income measures of poverty. The system is adapted in local context taking into account area specific characteristics and development concerns. It generates outcome and impact indicators to measure survival, security and enabling needs of households and population at a given point in time.

5) **CBMS uses freewares.** CBMS utilizes available freewares for data collection, data processing, and poverty mapping particularly for use of local governments with very limited resources.

6) **CBMS establishes database at each geopolitical level.** CBMS data repositories are established and made available and accessible at the city/municipal/provincial level, and to the extent possible at the lowest level of governance/administration for use in decision making and program implementation. The CBMS database is set up and maintained (with differential access and related protocols) at the municipal/city/provincial level for access and use of LGUs for local planning and program implementation. Data can be readily accessed by the LGU to provide vital baseline information for preparing socioeconomic profiles, development plans, project proposals and other development reports.

**The CBMS Process**

The implementation of the CBMS involves the following activities:

1. **Community Mobilization.** This entails social preparation including an orientation on CBMS of key stakeholders in the community i.e. local administrators and officials, planning officials and other concerned department heads, community leaders, and other local development planners. It includes identification of focal persons to serve as monitors, enumerators, data processors, and field coordinators, resource mobilization, and preparation of work plan.

2. **Local training / capacity building.** Central to the CBMS process is the conduct of training and capacity building to key players at the local level on data collection, data processing and data base management, and on the use of the data.

3. **Data Collection.** CBMS data are collected through the conduct of a household census by trained local enumerators. There are 2 main instruments for CBMS data collection: (1) a household profile questionnaire, and (2) a community profile questionnaire. The CBMS HPQ collects information on the demographic and socioeconomic characteristics of the household in a particular locality. The CBMS CPQ, on the other hand, primarily gathers data on available service facilities and infrastructures in the area. It also collects data on the physical characteristics of the community, and other available administrative data i.e. reported crimes,
4. **Data Processing.** This involves the generation of core local poverty indicators and corresponding data disaggregation. It also includes the generation of poverty maps.

5. **Data Validation.** CBMS census results, particularly results on core local poverty indicators and identified needs in the community, are presented and discussed in a validation workshop participated in by key stakeholders in the village/city/municipal/provincial levels. CBMS findings are presented at each geopolitical level to validate and discuss the results, prioritize needs and identify proposed solutions for policy action and implementation of appropriate programs and interventions.

6. **Database Management.** CBMS data is transmitted, stored and managed in a repository or portal by authorized users. Access to the data repository or portal is differential depending on the type and/or role of the CBMS user.

7. **Use of Data.** Once validated, CBMS data is intended to serve as critical inputs for the preparation and updating of development (poverty) profiles of villages/cities/municipalities/provinces particularly highlighting priority needs and specific areas for program action and intervention, and to guide resource planning allocation, program implementation and monitoring of outcomes.

8. **Dissemination.** Key CBMS findings on the identified needs and priority areas for intervention are disseminated to decision-makers and program implementers through regular meetings of local government/community development councils, public fora with stakeholders, publication, and other available platforms.

The CBMS methodology is operationalized using a set of structured instruments and training modules on data collection, data processing, poverty mapping, database-management and use of CBMS data for development profiling and analysis.

Data can be processed using freewares designed to automatically generate a core set of poverty indicators and other local/community level statistics and information that can be presented in tables, infographics, and digitized maps. CBMS responds to the lack of necessary disaggregated data for diagnosing extent of poverty at the local level, determining the causes of poverty, formulating appropriate policies and program, identifying eligible beneficiaries, and assessing impact of policies and programs.

### 2.2. CBMS Data

**Core Poverty Indicators**
Studies argue that there is no single measure for household welfare (Lamberte, Llanto, Lapar, and Orbeta, 1991). In the context of poverty, traditional measures are solely based on income but there is a consensus that poverty cannot be captured by income alone (Reyes and Ilarde, 1994).

Reyes (1994) first identified and mapped out a core set of indicators that are needed to be monitored at the village (barangay) level to monitor the micro impacts of macro-adjustment policies and shocks.

<table>
<thead>
<tr>
<th>Area of Concern</th>
<th>Indicators (municipal/provincial/national/regional levels)</th>
<th>Variables (barangay Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Survival</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>Infant Mortality Rate</td>
<td>Number of livebirths; infant deaths</td>
</tr>
<tr>
<td></td>
<td>Child Mortality Rate</td>
<td>Number of living children; Number of deaths of children (1-6 years old)</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Prevalence of Acute and Chronic Malnutrition</td>
<td>Number of children (0-6 years old) by height and weight, by age and by sex</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of Household with Sanitary Toilet Facilities</td>
<td>Number of households by type of facilities used</td>
</tr>
<tr>
<td></td>
<td>Proportion of Households with Safe Water</td>
<td>Number of households by type of source of water supply</td>
</tr>
<tr>
<td><strong>B. Security</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>Proportion of households in makeshift housing</td>
<td>Number of households by type of construction materials used for roofs and walls of dwellings</td>
</tr>
<tr>
<td>Peace and Order</td>
<td>Crime Incidence</td>
<td>Number of Victims of Crime by types of crime</td>
</tr>
<tr>
<td></td>
<td>Incidence of armed encounters</td>
<td>Number of Victims of armed encounters</td>
</tr>
<tr>
<td><strong>C. Enabling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income and Livelihood</td>
<td>Proportion of households with income greater than the poverty threshold</td>
<td>Income of households</td>
</tr>
<tr>
<td></td>
<td>Employment</td>
<td>Number of household members (15 years old and above) who are either at work or with a job/business</td>
</tr>
<tr>
<td></td>
<td>Underemployment</td>
<td>Number of employed persons wanting more hours of work</td>
</tr>
<tr>
<td>Basic Education and Literacy</td>
<td>Elementary Enrolment</td>
<td>Number of children (6.12 years old) attending the elementary level.</td>
</tr>
</tbody>
</table>
The CBMS Methodology

<table>
<thead>
<tr>
<th></th>
<th>Secondary Enrolment</th>
<th>Basic Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of family members</td>
<td>(13-15 years old) attending secondary level</td>
<td></td>
</tr>
<tr>
<td>Number of family members</td>
<td>(10 years old and above) able to read and write a simple message in any language or dialect</td>
<td></td>
</tr>
</tbody>
</table>

Political Participation

<table>
<thead>
<tr>
<th></th>
<th>Proportion of households involved in at least one community organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households with members who are involved in at least one community organization</td>
<td></td>
</tr>
<tr>
<td>Proportion of households who participated in formal electoral process</td>
<td></td>
</tr>
<tr>
<td>Number of households with Eligible/registered actual voters</td>
<td></td>
</tr>
</tbody>
</table>


The CBMS is designed as a tool that generates a core set of indicators that enable monitoring of changes in welfare of households and vulnerable population over time. CBMS poverty indicators are identified taking into account the multifaceted nature of poverty and measures of basic survival, enabling, and security needs. CBMS monitors poverty using outcome and impact indicators rather than output and input indicators. With CBMS data, a household and/or individual in a particular locality may be identified as health poor, nutrition poor, education poor, income poor, housing poor, water poor, sanitation poor, food poor, job poor, and/or security poor at a given point in time.

**Table 3: CBMS Core Poverty Indicators, Philippines**

<table>
<thead>
<tr>
<th>Basic Needs</th>
<th>Indicators</th>
<th>Dimensions of Poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Nutrition</td>
<td>Proportion of children under 5 who died</td>
<td>Health poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy related causes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 0-5 who are malnourished</td>
<td>Nutrition poor</td>
</tr>
<tr>
<td>Housing</td>
<td>Proportion of households in makeshift housing</td>
<td>Housing poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who are informal settlers</td>
<td>Tenure poor</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households without access to safe water supply</td>
<td>Water poor</td>
</tr>
</tbody>
</table>
## The CBMS Methodology

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Proportion of households without access to sanitary toilet facilities</td>
<td>Sanitation poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 6-11 years old who are not attending elementary school</td>
<td>Education poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 12-17 years old who are not attending high school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of children 6-17 years old who are not attending school</td>
<td></td>
</tr>
<tr>
<td>Income and Hunger</td>
<td>Proportion of households with income below the poverty threshold</td>
<td>Income poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with income below the food threshold</td>
<td>Income poor (extreme)</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who experienced hunger due to food shortage</td>
<td>Food poor</td>
</tr>
<tr>
<td>Employment</td>
<td>Proportion of persons in the labor force who are unemployed</td>
<td>Job Poor</td>
</tr>
<tr>
<td>Peace and Order</td>
<td>Proportion of persons who are victims of crime</td>
<td>Security Poor</td>
</tr>
</tbody>
</table>

Since CBMS collects household and individual level data, relevant indicators can be disaggregated across sub-population groups i.e. by location (urban/rural), age, sex, ethnicity, disability, income-class, and other socioeconomic characteristics. To enrich poverty analysis, CBMS also generates data on sources of income, asset ownership, and access to programs.

CBMS is designed to generate panel data, thus, it also facilitates the identification and tracking of chronic and transient poor across time.

### Community-Specific Indicators

Aside from generating a core set of indicators to monitor poverty, the CBMS also enables the collection of data that are relevant to the local community. Some of these include data relating to disasters (Philippines; South Africa), access to soaps (Burkina Faso), participation in social engagements or activities (Ethiopia; Vietnam; Tanzania), prevalence of young mothers (Argentina), access to short term and long-term social security (Bolivia), access to social protection (Haiti), participation in the financial sector (Uganda), and access to information (Indonesia) among others.
Other Data Generated by CBMS

It also enables the generation of necessary data disaggregation for examining various development concerns including the millennium development goals (MDGs) and the sustainable development goals (SDGs), gender and development, migration, child labor, youth unemployment and labor market disparities, social protection, and financial inclusion among others.

2.3. Data Collection Instruments

CBMS data is collected using two questionnaires: a household profile questionnaire and a community profile questionnaire. The Household Profile Questionnaire, administered through a household census, collects information about the household and its members.

The Community Profile Questionnaire, on the other hand, gathers data on the physical characteristics of community (village/commune), and availability and location of basic service facilities and infrastructures on health, education, finance (banks, cooperatives, ATMs, etc.) and other relevant administrative data that would supplement the analysis of data gathered from the HPQ and in the preparation of the development (poverty) profile of the community.

From 2000 to 2013, data collection in the implementation of CBMS in most CBMS sites is done through the traditional pen and paper approach. The introduction of the CBMS Accelerated Poverty Profiling tools in 2013 paved the way for the automated and simultaneous data collection and data encoding in the process of CBMS implementation.

Tablet-Based Data Collection: The CBMS Accelerated Poverty Profiling (APP) Tools

Developed and launched by the CBMS Network Team of De La Salle University-AKI in 2013, the CBMS Accelerated Poverty Profiling (APP) tools facilitated the implementation of computer assister personal interview (CAPI) approach in the conduct of household census. In particular, the CBMS APP tools enabled the tablet-based system for data collection as part of the CBMS process. This entails the use of the CBMS SCAN software and the CBMS Portal. The CBMS SCAN software enables data capture through android gadgets (tablets) while the CBMS Portal serves as online repository of data transmitted from the household census site during the field data collection. The CBMS SCAN facilitates the transformation of the paper questionnaire in the digital format and the automated collection of data on the geographic location of households surveyed using the built-in GPS feature of the android gadgets (tablets).

Through the use of the CBMS SCAN and CBMS Portal enabled the simultaneous conduct of data collection and encoding of census data. This innovation shortened the duration of data processing in the conduct of the CBMS methodology. The CBMS Portal, on the other hand, also serves as a database
management tool which enabled the digitization of the registration and monitoring of authorized users and workgroups involved in the CBMS data collection and processing.

2.4. Field Operations

Identification and Training of Local Enumerators and Monitors

The enumerators for the conduct of the CBMS household census are identified from the census sites particularly at the village level. These may include local health workers and nutrition scholars, students or on the job trainees, and other community volunteers with the required qualification for the conduct of data collection.

The census operation is under the supervision of the village head and other officers of the village, and is monitored by focal persons at the municipal/city government particularly from the planning and development offices.

A basic requirement for the choice of local enumerators is that they should be able to write, read, and do simple computations.

The number of enumerators needed in a barangay can be determined by calculating the number of persons needed to finish the census operation given the planned timeline for completion of data collection. Ideally, data collection should be completed in one month (22-man-days) given that an enumerator can accomplish an average of 8 to 10 household questionnaires per day. This computation, however, may vary depending on other factors such as available workforce and financial capacity, household population, and physical characteristics (i.e. land area, terrain etc.) of the census area.

Aside from the enumerators, focal persons from the local government (city/municipal/barangay) are also identified to serve as monitor for the implementation of all CBMS related activities, field editor, field coordinator, and enumerators.

2.4. Data Processing and Poverty Mapping

CBMS data can be processed using customized software for CBMS implementation. The CBMS StatSimPro, developed by the CBMS Network Team of DLSU-AKI, automatically computes and generates tables containing the core indicators of poverty, the CBMS composite index (CCI)\(^1\), selected

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\(^1\) The CBMS CCI, developed by Reyes, et al. (2004), allows ranking of nature and extent deprivation of households in a particular village, city, municipality or province. It combines a core set of multidimensional poverty indicators generated from CBMS data, can further be disaggregated and examined across sub-population groups (i.e. age, gender, ethnicity,
MDG and DRRM-related indicators, among others. Aside from automatically-generated tables, lists through simple querying are produced using the CBMS StatSim Pro. CBMS data can also be processed using other available commercial software such as STATA among others.

CBMS poverty maps, which overlays socioeconomic and geospatial data as shown in Figure X, can be generated using QGIS. QGIS, a user-friendly open source GIS software which runs on Linux, Unix, Mac OS X and Windows, is capable of creating and storing spatial (shapefiles) and non-spatial (texts and numbers) data as well as generating maps, reports and graphs ideal for presentation and analysis of poverty attributes in the community. This has significantly addressed the need for a simple yet powerful and free geographically-oriented database. A simple color scheme is adopted for the CBMS poverty maps. Green, light green, pink, and red represent the four ranges of data for each indicator. Areas with shades of green indicate location of population/communities with better conditions in terms of a particular poverty indicator relative to the rest of the areas in a particular locality while shades of red indicate location of population or households with worse conditions in terms of a particular poverty indicator. Dark green represents best performance, while red represents the worst performance. Each indicator, however, used a different range relative to the city/municipal/provincial data.

Figure 2: Proportion of households who are informal settlers, by Barangay, CBMS Site, Philippines, 2015

Source of basic data: CBMS Census, CBMS site, Philippines, 2015

Income class, urban/rural and others). This allows for identification of priority areas, and facilitates more focused targeting and implementation of needed interventions.
Figure 3: Location of households with children 6-15 Years old not attending school, by Barangay, CBMS site, Philippines, 2015

Source of basic data: CBMS Census, CBMS site, Philippines, 2015

2.5. Data Validation

Once data is processed and poverty maps have been generated, a community data validation is conducted at the village/city/municipal/provincial level. Data validation is an activity done to ensure that local leaders and the rest of the community are informed of the key findings/results of the CBMS census. It aims to provide an avenue for gathering feedback from key stakeholders and representatives from the community on the accuracy of the CBMS findings particularly (but not limited) on the poverty indicators- needs identified, and on possible explanations on the observed key findings.

The CBMS validation activity also facilitates identification of possible/priority areas of intervention. It serves as a pre-planning activity for local governments by identifying the major problems of the community that need priority action, and to discuss with the community on the possible/specific interventions needed to resolve these problems.

2.6. Database Management

The CBMS was designed to establish databases at each geopolitical level. Database management, in the context of CBMS, entails managing access to the data, updating of CBMS data incorporating...
needed corrections as a result of the community validation, and ensuring guidelines on data confidentiality/privacy is implemented.

The CBMS database at each geopolitical level is managed by LGU-identified monitors.

3. Applications of CBMS

The CBMS methodology has a number of concrete applications particularly in the areas of poverty measurement and analysis, monitoring impacts of various policy shocks, and local governance in the context of mainstreaming emerging development concerns. An overview of some of the uses of CBMS is discussed briefly in this section.

3.1. Poverty Measurement and Analysis

The development and implementation of the CBMS methodology in several developing countries showed how it can be used to generate more granular empirical data on standard measures of income poverty as well as on non-income measures of poverty. Various studies have proven how CBMS data on core indicators on poverty can facilitate the generation of poverty profiles and diagnosis of different dimensions of poverty at the barangay/city/municipal/provincial levels (Reyes and Ilarde, 1996), village/ward and upazila level in Bangladesh (Mujeri, undated; Guha, 2005), at commune levels in Vietnam (Tuan Anh, 1998), Cambodia (Chan et al, 2005, and Sothearith et al, 2011),

CBMS data can be used to generate composite indices for analyzing multidimensional poverty (Reyes, Ilarde, Valencia and Bancolita (2004); Asselin and Tuan Anh (2005)).

The use of the CBMS approach to monitor the missing dimensions of poverty was also pilot tested by the CBMS Network Office in collaboration with the Oxford Poverty and Human Development Initiative (OPHI) of University of Oxford in 2010 and showed how CBMS can generate additional poverty measures relating psychological well-being.

3.2. Program Targeting

Reyes, Ilarde, Valencia, and Bancolita (2004) first showed how CBMS data can be used for program targeting. Two rounds of census data (2000 and 2002), generated at the village (barangay) level with the implementation of CBMS by a local government in the Philippines, were used to compute for poverty indicators to identify and rank households who are most deprived. The study illustrated how to extract information from a core set of poverty indicators using a composite index to summarize what the set of indicators convey. The application of CBMS data for generating a
The CBMS Methodology

The composite index was illustrated using the traditional simple scoring method, and the multiple correspondence analysis (MCA). In Indonesia, Akhmadi, Suryadarma, Hastuti, and Fillaili (2006) also showed through principal component analysis (PCA) how CBMS data can accurately identify and rank welfare of families from the most prosperous to the poorest in the region using the case of 4 villages in West and Central Java.

3.3. Local Development Planning and Budgeting

Earlier experience from the field in many countries where CBMS has been adopted shows that the system aids and improves local planning and governance (see for example Guha (2007); Capones, (2008); Phoeun, (2008); Ahmad (2008); and other papers and documentation on uses of CBMS by local governments in the Philippines)

CBMS provides vital baseline information for the preparation of barangay, municipal/city, and provincial socioeconomic profiles, annual investment plans, land use plans, infrastructure project proposals, and other related development reports. It facilitates evidence-based resource allocation. One the most common dilemmas among local chief executives is how to efficiently and effectively use and manage the meager financial resources of the local government unit given the many competing projects and programs that need to be delivered in their localities. CBMS tries to address this issue by providing the necessary information that would reveal to decision makers an up-to-date development situation of communities in terms of core areas of welfare.

3.4. Gender Responsive Planning and Budgeting

CBMS can be used to mainstream in local plans and budgets concerns relating to gender and development. The CBMS is a complementary tool for fostering gender responsive budgeting by providing the needed gender-disaggregated data like the identification of beneficiaries of gender-related projects for targeting and resource allocation purposes (See Budlender, Reyes and Melesse, 2009).

Using data generated from selected CBMS sites in the Philippines, a CBMS Network study illustrated how CBMS data can be used and analyzed to provide inputs for local planning and budgeting (See Reyes, Mandap, Bancolita, Fajardo and De Jesus, 2009).

3.5. Localization and monitoring of achievement of global development goals

CBMS can be used for the preparation sub-national development profiles and reports in the context of monitoring national commitments in the achievement of global goals. It has been used for preparation of provincial human development report (Provincial Government of Palawan, 2002) and
sub-national millennium development goals (MDG) report (for example in the Philippines-covering 10 pilot provinces; Indonesia- Pekalongan City; Ghana-Dangme West District; Cambodia-Kratie Province). CBMS is recognized as a valuable tool for generating the required data disaggregation for monitoring the progress at sub-national level of the achievement of the millennium development goals (NEDA and UNCT, 2007; Wamwea, 2010), and as a local governance tool for monitoring progress, identifying priority needs and specific areas for intervention in achieving the sustainable development goals (Reyes, et al, 2018; Paavani, 2019).

CBMS can be used for generating and analyzing local level indicators of the sustainable development goals (SDGs) and preparation of local SDG reports (Reyes, et al, 2018; Kagugube, et al, 2019, Ketema, et al, 2019, Siphambe, et al, 2019; Romero, Flores, et. al, 2019; Quaye, et al, 2019; Murigi, Macho, Kariuki, and Muthoni, 2019). CBMS produces data that can be disaggregated by gender, age group, ethnic origin, with or without disabilities, income group and other relevant socioeconomic and demographic characteristics. Thus, the CBMS can help identify priority needs of specific groups of population and communities that are faring well and are lagging behind in terms of meeting the SDGs. Panel data generated by CBMS can also aid in monitoring the impacts of interventions and program actions in the context of the SDGs.

3.6. Vulnerability and disaster-risk mapping and planning

The CBMS can be a complementary tool for the establishment and maintenance of early warning systems for tracking implications or impacts of various types of shocks including natural calamities and climate change. CBMS generates the necessary data to identify population groups that are vulnerable to disasters which would be very useful for vulnerability maps of municipalities and even villages and in preparation of disaster response plans (Reyes and Mandap, 2011). Overlaying CBMS generated poverty maps with hazard maps can aid in identifying which and how many households are in disaster prone areas and identifying suitable relocation sites for the affected households.

The application of CBMS data, in consonance with existing hazard maps and other available administrative data, for generating a localized climate change vulnerability risk index was first pilot tested in selected sites in the Philippines (Reyes and Quilitis, 2015), Indonesia (Akhmadi, et. al 2015), and Vietnam (Tuan Anh, 2015) to examine risk exposure, sensitivity and adaptive capacities at the village and provincial levels.

CBMS can also provide useful data for household level analysis of sectoral issues relating to climate change such as the implications of climate change to food security (See for example Reyes, Bancolita, Calubayan and Leyso, 2014).
3.7. Impact Monitoring

The CBMS facilitates the generation of necessary disaggregated data for monitoring of impacts on poverty of various economic policy shocks such as financial crisis, increase in food and fuel prices among others. Reyes and Mandap (1999), for instance, first showed how CBMS can be used to analyze the impact of the 1997 Asian financial crisis using village level data generated from selected CBMS sites in the Philippines. The implementation of CBMS together with a crisis module in selected sites in Indonesia, Cambodia, Lao PDR, and Nigeria also provided evidence how CBMS aids in the collection of local level data to capture the channels of the impacts of a global financial crisis on poverty and to monitor household coping mechanisms in periods of complex crisis.

Using panel data generated from CBMS in selected sites in Cambodia, Try and Sovannarith (2009) was able to examine the impact of hiked prices of food and basic commodities on poverty in 5 villages and found that the more affected groups are households that are headed by females and are landless. Asante, Tagoe and Boakye (2010) were also able to demonstrate on the usefulness of the CBMS approach to determine the effects of rise in food and fuel prices on rural households taking the case of selected communities in Dangme West District, and particularly provided evidence that the price increase has different effects across gender and income groups.

A related study (Reyes, Sobreviñas, Bancolita and De Jesus, 2010) using CBMS data from sites in the Philippines also confirmed that the impact of increasing prices of rice and fuel varies across different groups of households based on the level of urbanity, income group, and geographical location, and showed how households adopted various coping mechanisms in response to the price shocks. For instance, some households modified their expenses on food, health and education, as well as health seeking behavior (i.e. resorted to self-medication or shifted to herbal Medicines or shifting from private clinics/hospitals to government health centers/hospitals), which may have long-run adverse implications.

Taking the case of selected CBMS sites in Tana River District in Kenya, Nyamongo and Okoth (2010) also showed how CBMS data can be used to monitor the impact of food crisis particularly among pastoralist communities and found implications relating to loss of asset base, increased school drop-outs, early marriage of girls as source of livelihood, increased inability to access healthcare and other basic services, increased exposure to HIV since most women resort to prostitution in order to earn, and heightened household conflict and abuse.

CBMS can also be used to monitor impacts of specific programs. For example, taking the case of the Indonesia Unconditional Cash Transfer Program, Sumarto (2010) pointed out how CBMS can be used for better targeting beneficiaries and monitoring shocks since it can identify local-specific poverty conditions. According to the said study since the criteria are generated by the data itself, they are not known prior to data collection (difficult to be tampered with). Combined with community-based validation, the CBMS method, according to Sumarto, can be a very powerful tool to monitor the impact of shocks and effectiveness of social assistance in mitigating the shocks.
In the Philippines, CBMS was also used as a platform to generate the needed household level data for determining the impacts of the UNICEF’s unconditional cash transfer program on affected communities in the Philippines of typhoon Yolanda (Haiyan) (See Reyes, Albert and Reyes, 2018).

4. Strategies and Addressing Challenges for Implementing CBMS

Experience and lessons drawn from the development and implementation of the CBMS methodology in different countries and for various thematic concerns point out to some key elements that facilitate the realization and maximization of the intended benefits of CBMS.

4.1. Tools Development

The tools for data collection must be adopted in local context. While there are common indicators that can be monitored and generated across countries based on global standards, the inclusion of relevant measures of poverty (development) and other community specific indicators is important. Consultation with key stakeholders and target data users is a crucial step in the design of the indicators and questionnaire.

The design of instruments for the implementation of CBMS must also take into account existing local capacities while at the same time maximize the use of available technologies that can be customized to facilitate CBMS data collection and data processing.

For more advanced and institutionalized CBMS implementation, it is important to note that the data collection tool must be updated on a regular basis to take into account data requirements for emerging development concerns.

4.2. Local Capacity Building

One of the challenges in the implementation of CBMS is knowledge and skills transfer to local communities where CBMS will be implemented. This requires the design and deployment of appropriate training modules and materials (in local context and language) to identified focal persons and key personnel given their expected roles in the CBMS implementation process in the sites.

For more advanced and institutionalized CBMS implementation, the creation of a pool of national and regional trainers facilitates necessary technical support for the establishment of CBMS in more.
4.3. Policy Environment

Policy actions and program initiatives that require more granular and regular data and foster inclusive development and empowerment of communities steer greater demand for CBMS.

4.4. Resource Mobilization

CBMS implementation requires human, financial and physical resources. Resources are needed for development and customization of data collection instruments in local context and address area/country specific data requirements, data collection, data processing, database management, and local capacity building/training.

Different strategies for partnerships and resource sharing may be explored to mobilize the needed resources for CBMS implementation.

In the case of the Philippines, where CBMS is widely adopted by local governments since 2000 to present as a tool for local planning, the implementation and updating of the LGU-CBMS databases are undertaken through a technical collaboration between the LGU, the Department of the Interior and Local Government, and the CBMS Network Team. In the case of Indonesia, where CBMS has been adopted in 18 provinces in 2011, the implementation was facilitated through a joint collaboration between the local CBMS research team of the SMERU Research Institute and the National Secretariat of PEKKA (Women Household Empowerment)².

4.5. Dissemination

There are various modalities through which key CBMS findings may be disseminated to target stakeholders and members of the communities. Aside from publication of CBMS-based development profiles, in the early years of CBMS implementation, CBMS results on poverty indicators are presented in communities through the use of data boards, and in some areas through drawings (case of some sites in Burkina Faso). The use of digitized poverty maps since 2000 to present, which overlays geospatial information with CBMS data, has been a very effective strategy in highlighting priority needs and areas for interventions to decision makers both at the local and national levels.

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Chapter 2
CBMS in Asia

Philippines

1. Context and Rationale for the Implementation of CBMS

1.1. Background

The CBMS methodology was pilot tested in the Philippines in 1995 and was first adopted as a tool for local planning by a local government in 1999. The utilization of CBMS by several municipalities, cities and provinces in the country over the last 2 decades has shown a wide application of CBMS for policymaking and program implementation. Since 1999 to June 30, 2020, CBMS has been adopted by LGUs in 78 provinces covering 1108 municipalities, 113 cities and 31,379 barangays.

In April 2019, a CBMS law was enacted via Republic Act 11315 known as the Community Based Monitoring System (CBMS Act). The enactment of the law is expected to establish CBMS in all cities and municipalities and be used as a tool for the development of implementation of social protection and poverty reduction programs. One of the expected outcomes of the CBMS law is to synchronize the conduct of the CBMS data collection and further standardize and improve the quality of data collection in the conduct of CBMS.

Prior to the CBMS law, the CBMS is widely adopted and used by local governments in the country as a tool for local planning and program implementation in the context of mainstreaming poverty reduction, gender and development, monitoring the millennium development goals (MDGs)/sustainable development goals (SDGs), disaster risk reduction and climate change adaptation, bottom up planning and budgeting, migration and development, among others. The first local government unit that adopted CBMS as a tool for local planning is the Provincial Government of Palawan. An initial pilot run was done by the LGU covering selected barangays in 1999, and through an executive ordinance issued by the Provincial Government, CBMS was then rolled out to the other municipalities and was institutionalized as a tool for preparation of local development plans and program implementation in the Province in 2000. Using its CBMS data, Palawan was the first province to have its Provincial Human Development Report in 2001. Other LGUs followed suit in the adoption of the CBMS given the demand for more updated and disaggregated data that are useful and readily accessible particularly for preparation of annual development and investment plans, preparation of local poverty reduction action plans, and more efficient targeting of programs. A study by Bautista and Alfonso (2009) shows that the most prevalent practice to set the CBMS in place is the endorsement of the approach by the local chief executives and pointed out that CBMS was
institutionalized in most of the localities through the issuance of executive directives recognizing the CBMS as a tool to assess the quality of life in the respective local government units.

Aside from LGU driven policy initiatives for the adoption of CBMS at the local level, several policy issuances initiated at the national level have supported the implementation of CBMS for various thematic concerns. Some of these are shown in Table 1.

| Table 1: Selected National Policy Issuances supporting the use of CBMS, Philippines |
|---------------------------------|----------------------------------------------------------------------------------|
| **NSCB Resolution No. 6, Series of 2005** | Issued in January 24, 2005, the resolution recognizes the CBMS as a viable and cost efficient system that can be used to generate the Core Local Poverty Indicators (CLPIs) and ensure uniformity and standardization of CLPI databases of all LGUs. |
| **SDC Resolution No. 3, Series of 2006** | Issued on July 19, 2006, the resolution signed by concerned national government agencies led by the National Economic and Development Authority (NEDA) adopted the CBMS as the prescribed monitoring tool for the generation of the Core Local Poverty Indicators (CLPI) Database. It further enjoins the National Anti-Poverty Commission (NAPC), Department of Interior Local Government (DILG), and other government agencies, and LGUs to coordinate with the CBMS Network Team toward the fast-tracking and full implementation of the CBMS. |
| **League of Municipalities of the Philippines (LMP) Memorandum Circular 027-2006** | Issued in June 2006, the circular enjoins all CBMS-implementing municipalities to adopt/sustain the adoption of the CBMS as a tool for local poverty diagnosis and ensure the incorporation of the MDG targets and utilization of CBMS data in the formulation of local development plans. In July 2006, this MC was amended to also enjoin municipalities to institutionalize CBMS as part of the system of local governance. |
| **League of Provinces of the Philippines (LPP) Resolution No. 2011-01** | Issued in January 28, 2011, urging the Department of Social and Welfare Development (DSWD) and the Department of Health (DOH) to adopt the CBMS and other locally-developed poverty monitoring systems as its targeting system in identifying beneficiaries to the Pantawid Pamilyang Pilipino Program (4Ps) and the Philhealth Indigent Sponsored Program. |
| **DILG Memorandum Circular 2012-142** | Issued in August 10, 2012, the circular enjoins all local chief executives to utilize the community-based monitoring system (CBMS) in planning and project development. It also recommends for the adoption of CBMS to coincide with the synchronized local planning and budgeting calendar and with the bottom up planning and budgeting preparation calendar. |
| **DILG Memorandum Circular 2016-69** | Issued on May 23, 2016, the circular provides policy guidelines for the implementation of CBMS and capacity development projects on Gender and Development (GAD), Disaster Risk Reduction and Climate Change Adaptation.
The CBMS initiative in the Philippines responds to the lack of necessary disaggregated data for diagnosing extent of poverty at the local level, for determining the causes of poverty, formulating appropriate policies and program, for identifying eligible beneficiaries, and for assessing impact of policies and programs. While it was designed primarily as a poverty diagnostic tool, the CBMS also responds to the need for a support mechanism for LGUs’ mandate in the delivery of basic services in the context of decentralization by facilitating greater efficiency, transparency and accountability in local governance.

1.2. Local Government Structure

The passage of the Local Government Code (LGC) in 1991 represented a major step in decentralization in the Philippines. Before the LGC, the LGUs’ main functions were levying and collection of local taxes; regulation of business activities; and administration of garbage collection, public cemeteries, public markets, and slaughterhouses. The LGC paved the way for increased local autonomy, expenditure responsibility, and revenue authority. In particular, the principal responsibility for the delivery of basic social services and the operation of the facilities were devolved to LGUs. The devolved areas are agricultural extension and research, social forestry, environmental management and pollution control, primary health and hospital care, social welfare services, repair and maintenance of infrastructure, water supply and communal irrigation, and land use planning. Consequently, personnel of national government agencies (NGAs) who were doing these tasks before the passage of the LGC were devolved to the LGUs.

The LGUs were also given the authority to collect taxes to be able to generate resources to complement the Internal Revenue Allotment (IRA) that they get from the national government.
new scheme was devised to determine the share of LGUs from the revenues collected by the national government and this is based primarily on population and land size.

Likewise, the Social Reform and Poverty Alleviation Act of 1997 gave the LGUs the frontline role in the fight against poverty. The law mandates the LGUs to be responsible for the formulation, implementation, monitoring, and evaluation of the Anti-Poverty Reduction Agenda within their areas of jurisdiction.

In the Philippines, there are five geopolitical levels. A region is a subnational administrative unit comprising several provinces and having more or less homogenous characteristics such as ethnic origin of inhabitants, dialect spoken, and agricultural produce, among others. The province is the largest unit in the political structure and is headed by an elected governor. It consists, in varying numbers, of municipalities and, in some cases, of component cities. Its functions and duties in relation to its component cities and municipalities are generally coordinative and supervisory. The municipality/city is a political body endowed with the facilities of a municipal/city corporation and exercised by and through the municipal/city government in conformity with law. The municipality is headed by an elected mayor. It is a subsidiary of the province, which consists of a number of barangays within its territorial boundaries, one of which is the seat of government found at the town proper (poblacion). There are three classes of cities in the Philippines: (i) the highly urbanized city, (ii) the independent component city that is independent of the province, and (iii) the component city that is part of the province where it is located and is subject to its administrative supervision. The barangay is the smallest political unit that generally comprises cities and/or municipalities. It consists of less than 1,000 inhabitants residing within the territorial limit of a barangay and administered by a set of elective officials headed by a barangay chairman (punong barangay).

The Philippines has 17 regions, 81 provinces, 146 cities, 1,488 municipalities, and 42,046 barangays or villages.

The implementation of targeted programs has been a major weakness of most LGUs in the country as they lack reliable and credible baseline data, particularly poverty statistics. Prior to the CBMS initiative, LGUs rely on centrally produced data from the National Statistics Office (NSO) and the National Statistical Coordination Board (NSCB)\(^1\) for their planning. These data, however, are not disaggregated at the municipal/city government and barangay government levels—the lower level LGUs that are primarily at the forefront of policy or program execution—hence, the difficulty of accurate targeting and proper programming. While there are administrative records and registries established and maintained, in most cases, most of the data are come from different sources and are collected at different time periods and using different methodologies. This makes it difficult to come up with a comprehensive and updated poverty or development profiles that can facilitate better

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\(^1\) The Philippine Statistics Authority (PSA) was created by virtue of Republic Act No. 10625 otherwise known as the Philippine Statistical Act of 2013. It combined together the following statistical agencies: National Statistics Office (NSO), the National Statistical Coordination Board (NSCB), the Bureau of Labor and Employment Statistics (BLES), and the Bureau of Agricultural Statistics (BAS).
design and targeting of needed programs at a given point in time.

1.3. Review of Existing Monitoring Systems

Data on the different dimensions of poverty in the country are traditionally obtained from national censuses and surveys conducted by the former National Statistics Office (NSO), now Philippine Statistics Authority (PSA), as shown in Table 2. These surveys and censuses, however, are conducted infrequently and at irregular intervals. Moreover, they are conducted at different time-periods making it impossible to have a comprehensive picture of the different dimensions of poverty at a particular point in time. Thus, it is difficult to determine if the ones who are poor based on income are also poor in terms of literacy, nutrition, and housing, among others. It must be noted that data from these sources are very much aggregated. The available national, regional, and sometimes provincial data are not sufficient to meet the demands of LGUs, particularly cities/municipalities and barangays, which need disaggregated information to diagnose poverty at the local level and to identify appropriate interventions.

Overtime, there has been greater emphasis on targeted programs because of limited financial resources to implement poverty reduction assistance programs. For instance, several programs of national government agencies such as the PhilHealth—a government subsidized health insurance program for indigents—and of LGUs such as livelihood and scholarship programs, are intended for the poor. Unfortunately, data are not available to support such targeting schemes. Consequently, there have been difficulties in identifying eligible beneficiaries. When disparities are large within municipalities/cities and barangays, pure geographic targeting is not enough. Geographic targeting can be used as the first step in prioritizing areas, but targeting at household/individual level is needed to minimize leakages and reduce exclusions.

Table 2: Official Sources Data on Poverty in the Philippines

<table>
<thead>
<tr>
<th>Available Sources of Data</th>
<th>Implementing Agency</th>
<th>Frequency of Collection</th>
<th>Data Obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Income and Expenditures Survey (FIES)</td>
<td>Philippine Statistics Authority (PSA)</td>
<td>Every 3 years</td>
<td>Family income and living expenditures and related information affecting income and expenditure levels and patterns in the Philippines, including poverty incidence</td>
</tr>
<tr>
<td>Annual Poverty Indicator Survey (APIS)</td>
<td>Philippine Statistics Authority (PSA)</td>
<td>Every year when the FIES is not conducted</td>
<td>Socioeconomic profiles of families and other information relating to their living conditions but not poverty incidence</td>
</tr>
</tbody>
</table>
2. Implementation of CBMS in Philippines Context

The CBMS, being implemented by local governments since 1999 to present, follows the CBMS design by Reyes (See Reyes, 1994) initiated under the Micro Impacts of Macro Economic Adjustment Policies (MIMAP). The CBMS was designed following the outcome of a review of existing monitoring systems in the country during the period (Reyes and Alba, 1994). The CBMS was initially pilot-tested in 2 barangays in the municipality of Pandi, Bulacan in 1995 and 1996. From then on, the CBMS methodology and tools for data collection, data processing and local training modules were further developed by the MIMAP Philippines Project Management Office (referred as the CBMS Network Team/Office starting 2002 to present) to incorporate lessons from its deployment in various local government units and emerging development concerns.

The implementation of CBMS involves an eight step process as described in detail in this section.

2.1. Community Mobilization

This step of the CBMS process involves a general orientation of key players and stakeholders in the city/municipality/province on the CBMS initiative and its expected outputs and outcomes, preparation of necessary administrative documents such as memorandum of agreements, executive
orders and resolutions, and details of work plan for the operationalization of CBMS activities. The
MOA stipulates the areas of responsibilities and resource sharing among key collaborators for the
CBMS implementation, expected outputs and timeline of conduct and completion of CBMS activities.
The preparation of the CBMS work plan involves identification of focal persons and monitors in the
LGU, mapping of available resources for the required activities in the conduct of local training, data
collection, processing, database management, and other CBMS activities.

2.2. Data Collection

CBMS data collection is done by trained local enumerators and supervised by LGU monitors and focal
persons. The initial pilot test of CBMS methodology in 1995 until its roll out through an LGU-demand
driven CBMS implementation from 1999 to early 2012, adopted a paper-based approach in the
conduct of field data collection. In 2013, the tablet-based system of data collection was introduced by
the CBMS Network as part of the CBMS process with the launch of the CBMS Accelerated Poverty
Profiling (CBMS APP) tools.

2.2.1. Data Collection Instruments

CBMS data is primarily collected through 2 main instruments: (1) a Household Profile Questionnaire
(HPQ) and (2) a Barangay Profile Questionnaire (BPQ). The latest version of the CBMS HPQ is
comprised of 186 questions, while the CBMS BPQ covers 67 questions. The CBMS questionnaires are
periodically reviewed and updated since its conception to take into account key data requirements
for emerging development concerns (i.e. MDGs/SDGs, DRR and climate change among others), and
updates on standard definitions of the core poverty indicators and other data that are being
monitored by CBMS.

Both CBMS questionnaires with their corresponding user manuals, prior to deployment to LGUs that
have adopted the CBMS, are being submitted for review and clearance to the Philippines Statistics
Authority (formerly to the National Statistical Coordination Board).

The CBMS Household Profile Questionnaire (HPQ) collects information on the demographic and
socioeconomic characteristics of households and individuals. It also collects on the location of the
households interviewed. The CBMS questionnaire design incorporates standard definitions of
indicators and variables, geographical codes, and other codes relating to occupation, industry/sector
classification, and type of facilities among others.

The CBMS HPQ (available in English and Filipino versions) collects data on the following:

- household location
population demography i.e. age, sex, ethnicity, civil status, persons with disabilities
- education
- nutrition
- health
- employment
- sources of income
- political participation
- housing by type of construction materials and tenure status
- access to water by type of sources
- access to sanitation by type of facility
- access to housing including tenure status and type of construction materials
- asset ownership including communication and transportation facilities and other durables
- peace and order
- disaster risk preparedness and climate change
- access to programs

The CBMS Barangay (Village) Profile Questionnaire, on the other hand, collects data on the demographic and physical characteristics of the community and on availability and/or accessibility of basic service infrastructures i.e. education, health, financial services, disaster preparedness, etc., in the barangay. It also records significant events in the barangay in the last 3 years i.e. disasters, etc., reported crimes, and barangay budget, revenue and expenditures. The data gathered from the BPQ is intended to be as supplemental reference for analyzing the household and individual level data generated from the CBMS HPQ.

Starting 2013 to present, the administration of the CBMS HPQ and BPQ have shifted from the traditional pen and paper approach to a tablet system of data collection with the aid of the CBMS Accelerated Poverty Profiling (APP) tools. These CBMS APP tools include the CBMS SCAN and the CBMS Portal. The CBMS SCAN is the digital form of the paper questionnaire that enables data capture using an android device while the CBMS Portal serves as online repository of the data collected from the CBMS census sites and used for database management in the process of implementation of the CBMS.

2.2.2. Identification and Training of Local Enumerators and Supervisors

The proposed enumerators for the census are the barangay (village) health workers and nutrition scholars. Every village in the Philippines has these two officers. They perform a vital role in the care and monitoring of the nutritional welfare of children who are 0–5 years old. Other community volunteers can be tapped as enumerators depending on the need and size of the population of the community. The census operation is under the supervision of the barangay captain (village head)
and other officers of the village. Experience from the field in various CBMS sites indicate that qualified students and the LGU’s on the job trainees can also be trained to serve as local enumerators.

A basic requirement for the choice of enumerators is that they should be able to write, read, and do simple computations. With the adoption of the tablet based data collection system using the CBMS APP, an additional requirement is the ability to use mobile and android devices. Enumerators are tasked to completely interview all households in their assigned area or barangay.

The number of enumerators needed in a barangay can be determined by calculating the number of persons needed to finish the census operation in one month (22-man-days) given that an enumerator can accomplish 10 household questionnaires per day. This is the standard procedure. The computation, however, may vary depending on other factors such as manpower and financial capacity of the LGU, the household population, and land area that will be covered during the census operation.

Key players in the LGU data collection are the CBMS-Technical Working Group (TWG), together as a team with the field editor, field coordinator, and enumerators. A 5-day CBMS orientation and training program for data collection is organized for the LGU.

### 2.2.3. Training on Data Collection

A 5-day training workshop module on CBMS data collection module is conducted. The training session is composed of lectures on the CBMS concepts, data collection tools (questionnaires and the tablet based system) to be used, procedures for the field operations, and ethics/protocols to be observed for the use of the CBMS tools and for the conduct of data collection. Data collection is expected to follow shortly soon after the conduct of training of enumerators.

The first day of the CBMS training module on data collection is devoted for the members of the LGU-technical working group who are designated to oversee the CBMS data collection in the locality. The session covers lectures and hands-on exercise on the management and use of the CBMS PORTAL, CBMS-SCAN and the administration of the CBMS-barangay profile questionnaire (BPQ).

The rest of the 4 days of training are focused on the administration of the CBMS household profile questionnaire and field operations procedure for the conduct of the household census. The 2nd and 3rd days of the training are devoted to familiarization of the instrument for the conduct of the household census which include concepts and definitions of variables to be collected in each section of the CBMS HPQ. The 4th day is a hands-on training in filling up the CBMS form in the Android gadget using CBMS SCAN. Field exercises and discussion of field operations are done on the last day of the training.
A training of CBMS trainers from the Department of the Interior and Local Government is being conducted by the CBMS Network Office based at the DLSU annually since 2008. The DILG-CBMS trainers, composed of focal persons from the DILG central and regional offices, who are trained on the basic CBMS module on data collection serve as trainers at the provincial/municipal/city levels. An accreditation program of CBMS trainers have also been developed and implemented by the CBMS Network to recognize trainers that have complied with corresponding requirements in terms of CBMS training delivery.

2.3. Data Processing

The processing of CBMS data by LGUs generated from the conduct of CBMS census in the Philippines has evolved from the traditional manual tally sheets and excel based data consolidation system in 1995 to a fully automated data processing system as it is to date.

The evolution of deployment of CBMS data processing instruments is shown in Table 3.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Processing</td>
<td>tally sheets (manual and MS Excel based system)</td>
<td>CBMS STATSIM Ver 3-5</td>
<td>CBMS STATSIM Ver. 6</td>
</tr>
<tr>
<td>CSPro</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty Mapping</td>
<td>paper-based approach (barangay spot mapping)</td>
<td>CBMS-NRDB</td>
<td>CBMS QGIS</td>
</tr>
<tr>
<td>Database Management</td>
<td>CBMS database (MS Excel based system)</td>
<td>CBMS database (MS Excel based)</td>
<td>CBMS Portal</td>
</tr>
</tbody>
</table>

The CBMS data processing tools were developed particularly to assist LGUs process their CBMS census data. In particular, these tools are shared and made accessible to LGUs implementing the CBMS taking into account LGUs’ limited resources to purchase commercial software.

CBMS data is currently being processed using the CBMS StatSimPro. The CBMS StatSimPro is a data processing software developed by the CBMS Network Team of DLSU-AKI for use of CBMS implementers. It is a data processing tool designed to automatically compute and generate
tabulations on the CBMS core indicators of poverty, the CBMS composite index (CCI)\(^2\), selected CBMS-MDG indicators, and CBMS-DRRM-related indicators, among other CBMS data. Aside from automatically-generated tables, lists and rosters through simple querying can derived from the CBMS database using the CBMS StatSim Pro.

Another tool being used for processing CBMS data is QGIS- a user-friendly open source GIS software which runs on Linux, Unix, Mac OSX and Windows that is capable of creating and storing spatial (shape files) and non-spatial (texts and numbers) data as well as generating maps, reports and graphs ideal for presentation and analysis of poverty attributes in the community. In particular, QGIS is used for generation of poverty maps (See examples in Figures 1 and 2) for presentation of poverty indicators and corresponding disparities within and across communities (barangays/cities/municipalities/provinces). A simple color scheme is used for the poverty maps. Green, light green, pink, and red represent the four ranges of data for each indicator. Shades of green indicate performance better than the city/municipal/provincial data while shades of red indicate performance worse than the city/municipal/provincial data. Dark green represents best performance, while red represents the worst performance. Each indicator, however, used a different range relative to the city/municipal/provincial data.

\(^2\) The CBMS CCI (see Reyes, Ilarde, Valencia & Bancolita, 2004) allows ranking of nature and extent deprivation of households in a particular village, city, municipality or province. It combines a core set of multidimensional poverty indicators generated from CBMS data, can further be disaggregated and examined across sub-population groups (i.e. age, gender, ethnicity, income class, urban/rural and others). This allows for identification of priority areas, and facilitates more focused targeting and implementation of needed interventions.
Figure 1: Proportion of households who are informal settlers, by Barangay, City of Valenzuela, 2015

Source of basic data: CBMS Census, City of Valenzuela, 2015

Figure 2: Proportion of households with children 6-15 Years old not attending school, by Barangay, City of Valenzuela, 2015

Source of basic data: CBMS Census, City of Valenzuela, 2015

CBMS data can also be processed using other available commercial software such as STATA.
2.4. Data Validation

After completion of data processing and generation of poverty maps, community data validation (barangay/city/municipal/provincial level) will be conducted. Data validation is an activity done to ensure that local leaders and the rest of the community are informed of the key findings/results of the CBMS census. It provides an avenue for gathering feedback from the community on the accuracy of the CBMS findings- needs identified, and on possible explanations on the observed key findings.

The CBMS validation activity also facilitates identification of possible/priority areas of intervention. It serves as a pre-planning activity for the LGU by identifying the major problems of the community and solicits possible/specific interventions needed to resolve these problems.

2.5. Database Management

CBMS databases are established at LGU level. The database is managed by assigned LGU monitors at the provincial, city/municipal (at planning and development office of the LGUs) and to the extent possible at the barangay level. A central repository of CBMS data of various local governments that have implemented CBMS to date is maintained by the CBMS Network Office based at the DLSU, and at the Department of Interior and Local Government (DILG) as part of oversight functions in the implementation of CBMS in the country.

2.6. Dissemination

CBMS findings are disseminated through various local and national fora. A CBMS national conference is initiated by the CBMS Network Office in 2001 and is continued to be conducted annually from thereon. The CBMS national conference provides a venue for local governments and other CBMS users and stakeholders in the country to share best practices on the use and implementation of CBMS for local planning, poverty reduction and other thematic concerns.

At the local level, CBMS findings are disseminated by LGUs in the regular meetings of local planning units and other regional fora or conventions.

3. CBMS Data

CBMS generates a range of demographic and socioeconomic data. These include household and individual characteristics relating to the different aspects of poverty and other development indicators. Data on PWDS, solo parents, migration, disaster preparedness and climate change, and access to programs (by NGA/LGU/NGOs/others) among others can be derived from the CBMS. CBMS
data can be disaggregated by age, sex, ethnicity, sub-location, income-class and other relevant sub-population groups and characteristics.

**Poverty Statistics**

The CBMS generates household and individual level data at the barangay/city/municipal/provincial level on the different dimensions of poverty. It monitors poverty using a core set of poverty indicators covering (1) health and nutrition, (2) housing, (3) water and sanitation, (4) education, (5) income and hunger, (6) employment, (7) peace and order. This core set of poverty indicators have been adopted by a national interagency committee led by the National Economic and Development Authority, Department of the Interior and Local Government and National Anti-Poverty Commission through an En Banc Resolution\(^3\) approved and issued in March 2003. The said adoption of the indicators, particularly in the context of the Social Reform and Poverty Alleviation Act of 1997 and of the Local Government Code of 1991, is intended to guide local government agencies, national government agencies and other developmental institutions to identify community specific poverty issues and problems and corresponding development interventions, programs and projects in the communities.

Reyes (1994) first identified the core set of poverty indicators that needs to be monitored by the community-based monitoring system (CBMS). The development of the indicators stems from the need to monitor the impacts of adjustment policies on the welfare status of households and vulnerable groups of population overtime. While the existing statistical system generates some of these indicators, most information available at that time favor input indicators. For instance, while many of the monitoring systems generate indicators relating to credit and other inputs very few attempt to measure the impact of these inputs to the welfare status of the beneficiaries. From an initial set of 16 indicators to be monitored at the barangay level, the CBMS core indicators have been trimmed to 14 indicators (Table 4) to take into account emerging development priorities and concerns.

---

\(^3\) NAPC En Banc Resolution No. 7
Table 4: CBMS Core Poverty Indicators, Philippines

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Indicator</th>
<th>Poor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Nutrition</td>
<td>Proportion of children under 5 who died</td>
<td>Health poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy related causes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 0-5 who are malnourished</td>
<td>Nutrition poor</td>
</tr>
<tr>
<td>Housing</td>
<td>Proportion of households in makeshift housing</td>
<td>Housing poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who are informal settlers</td>
<td>Tenure poor</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households without access to safe water supply</td>
<td>Water poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of households without access to sanitary toilet facilities</td>
<td>Sanitation poor</td>
</tr>
<tr>
<td>Education</td>
<td>Proportion of children 6-11 years old who are not attending elementary school</td>
<td>Education poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 12-17 years old who are not attending high school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of children 6-17 years old who are not attending school</td>
<td></td>
</tr>
<tr>
<td>Income and Hunger</td>
<td>Proportion of households with income below the poverty threshold</td>
<td>Income poor</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with income below the food threshold</td>
<td>Income poor (extreme)</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who experienced hunger due to food shortage</td>
<td>Food poor</td>
</tr>
<tr>
<td>Employment</td>
<td>Proportion of persons in the labor force who are unemployed</td>
<td>Job Poor</td>
</tr>
<tr>
<td>Peace and Order</td>
<td>Proportion of persons who are victims of crime</td>
<td>Security Poor</td>
</tr>
</tbody>
</table>

SDG Indicators

The latest version\(^4\) of the CBMS questionnaires deployed to LGUs implementing the CBMS to date can already generate 39 indicators across 13 of the sustainable development goals (Table 5).

Table 5: List of CBMS Indicators for SDG Monitoring, 2017

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
</table>

\(^4\) CBMS HPQ Ver 2017
<table>
<thead>
<tr>
<th>Goal 1 – No Poverty</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)</td>
<td></td>
</tr>
<tr>
<td>Proportion of population living below the national poverty line, by sex and age</td>
<td></td>
</tr>
<tr>
<td>Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions</td>
<td></td>
</tr>
<tr>
<td>Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable</td>
<td></td>
</tr>
<tr>
<td>Proportion of population living in households with access to basic services</td>
<td></td>
</tr>
<tr>
<td>Proportion of households with members who died due to disaster</td>
<td></td>
</tr>
<tr>
<td>Proportion of households who experienced calamities</td>
<td></td>
</tr>
<tr>
<td>Proportion of LGUS with local disaster risk reduction plans</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 2 – Zero Hunger</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of malnutrition (weight for height &gt;+2 or &lt;-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (underweight for age)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 3 – Good Health and Well-Being</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of women deaths due to pregnancy-related causes</td>
<td></td>
</tr>
<tr>
<td>Proportion of under 5 year old children who died</td>
<td></td>
</tr>
<tr>
<td>Proportion of population who died due to cardiovascular disease, cancer, diabetes or [and] chronic respiratory disease</td>
<td></td>
</tr>
<tr>
<td>Proportion of population covered by health insurance or a public health system (Philhealth)</td>
<td></td>
</tr>
<tr>
<td>Proportion of population who died due to road/vehicular accidents</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 4 – Quality Education</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of children attending elementary and secondary school</td>
<td></td>
</tr>
<tr>
<td>Proportion of 3-4 year old children in child development centers/day care centers</td>
<td></td>
</tr>
<tr>
<td>Proportion of 5 year old children in kindergarten</td>
<td></td>
</tr>
<tr>
<td>Proportion of children in kindergarten</td>
<td></td>
</tr>
<tr>
<td>Proportion of youth and adults who have attended skills training in the past</td>
<td></td>
</tr>
<tr>
<td>Goal 5 – Gender Equality</td>
<td>1</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Goal 8 – Decent Work and Economic Growth

| Goal 8 – Decent Work and Economic Growth | 4 | Proportion of youth (aged 15-24 years) not in education, employment or training |
|                                         |   | Proportion and number of working children aged 5-17 years, by sex and age |
|                                         |   | Number of commercial bank branches |

Goal 10 – Reduced Inequalities

| Goal 10 – Reduced Inequalities | 1 | Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities |
|                               |   | Proportion of population who are informal settlers |
|                               |   | Proportion of households with members who died due to disaster |

Goal 11 – Sustainable Cities and Communities

| Goal 11 – Sustainable Cities and Communities | 4 | Proportion of households who experienced calamities |
|                                           |   | Proportion of persons who are victims of physical injuries or rape, by sex, age, disability status and place of occurrence, in the previous 12 months |
|                                           |   | Proportion of LGUS with local disaster risk reduction plans |

Goal 13 – Climate Action

| Goal 13 – Climate Action | 2 | Proportion of households with members who died due to disaster |
|                         |   | Proportion of households who experienced calamities |
|                         |   | Proportion of LGUS with local disaster risk reduction plans |

Goal 16 – Peace, Justice and Strong Institutions

| Goal 16 – Peace, Justice and Strong Institutions | 4 | Proportion of population who are victims of murder, by sex and by age |
|                                                 |   | Proportion of persons who are victims of physical injuries or rape, by sex, age, disability status and place of occurrence, in the previous 12 months |
Prior to the post 2015 agenda, CBMS data is also being used to generate local level indicators and required data disaggregation for monitoring progress on the millennium development goals (MDGs).

**Other CBMS Data**

In addition to data on household and individual socioeconomic characteristics generated from the conduct of the CBMS household census, the implementation of the CBMS also generates community level data including physical and demographic characteristics of the barangay, available service facilities and infrastructures such as health facilities, education facilities, financial service and credit institutions, evacuation centers, etc. among others from the CBMS community profile questionnaire administered by the trained enumerator to the designated village official.

Since CBMS collects data on geo-reference of households and community facilities, the implementation of the CBMS facilitates generation of GIS-poverty maps which overlays the poverty indicators with geographic reference data at the barangay/municipal/city/provincial levels. Some examples of CBMS poverty maps that can be produced (See for example CBMS Network publication, *Many Faces of Poverty Volumes 1 to 10*).

**4. Uses of CBMS**

The CBMS is widely adopted by local governments in the Philippines. As of June 2020 (as shown in Figure 4), CBMS data has been generated in at least 1,108 municipalities and 113 cities covering a total of 31,379 barangays in 78 provinces (36 of which are province-wide). Since 1999, about 133 LGUs have already implemented at least 3 rounds of CBMS census while 324 LGUs have implemented 2 rounds of CBMS census to update their CBMS databases. At least 768 LGUs have completed at 1 round of CBMS census. The implementation of CBMS in these localities is LGU-driven with technical support and guidance from the CBMS Network Office and the Department of the Interior and Local Government (DILG). The direct costs of CBMS implementation have been borne largely by the local government units through various cost sharing strategies within the LGUs. In some cases, NGOs, donor agencies and other stakeholders have contributed to the implementation.
Some of the concrete uses of CBMS in the country are discussed in this section.

**Local Planning and Budgeting**

CBMS is adopted by many local government units as a tool for local planning and budgeting and in mainstreaming various thematic concerns (See for example Pandi, 2004; Doria, 2005; Escano, 2015; Silagan, 2015; Aguilar, 2015; Sumabal, 2019). In particular, LGUs use CBMS to generate necessary disaggregated and updated barangay/city/municipal level data for their preparation and updating of local development profiles and plans i.e. comprehensive development plans, investment plans and budgets. Results of a research study by Sicat, Adaro and Maddawin (2020) found that the CBMS data is the most frequently used dataset tool among municipalities not just for ecological profiling but also for budget preparations and priority setting.

The Provincial Government of Palawan, the first local government unit in the country that adopted CBMS province-wide to enhance its planning and program implementation in 1999 and showed the feasibility of implementing CBMS as a tool for local planning (Mandap, 2001). With CBMS data, Palawan was also the first LGU to produce a provincial human development report (2001). The LGU, both at the provincial and municipal levels, has continued to use and update its CBMS database with its most recent 7th round of CBMS implementation.

In 2012, the Department of the Interior and Local Government (DILG), issued a memorandum circular enjoining all local chief executives to utilize the CBMS in planning and project development.
The DILG MC recommended for the adoption of CBMS to coincide with the synchronized local planning and budgeting calendar and with the bottom up planning and budgeting preparation calendar. Moreover, the DILG also issued a memorandum circular in 2016 that provided policy guidelines for the implementation of CBMS and capacity development projects on Gender and Development (GAD), Disaster Risk Reduction and Climate Change Adaptation (DRR-CCA). The guidelines are intended to aid the LGUs for the efficient and effective execution of sub-project components, monitoring, and reporting of projects under the bottom up budgeting (BUB) program.

**Poverty Monitoring, Mapping and Analysis**

CBMS data can generate poverty profiles of barangays, cities, municipalities and provinces (See for example Labios, 2004; Many Faces of Poverty Vols. 1 to 10 by Reyes, et. al). CBMS data allows generation of poverty profiles on the status of localities as measured by the 13+1 CBMS core indicators and the CBMS Composite Index (CCI) generated from the LGU’s CBMS database, and includes geospatial analysis of indicators through digitized poverty maps.

CBMS can also be used to generate poverty profiles of sub-population groups including IPs and children among other vulnerable groups, and identify and examine their poverty status and priority needs (For example see Reyes, Mandap, and Ilarde, 2005; Gamao, 2018; Reyes and Mandap 2019). CBMS data has been used by several local government units in the Philippines for the implementation of Family-based Actions for Children and their Environs in the Slums (FACES) one of the initiatives on anti-poverty programs implemented in the country (Local Government Academy, 2009). In particular, LGUs that implemented the CBMS were able to use their CBMS data for profiling of children and their families and for target setting. Panabo City Government was able to use their CBMS data for scaling up interventions for IP communities in the city (Gamao, 2018).
Figure 5: Distribution of IP Households by Purok, CBMS site, Philippines, 2002

Table 6: School Participation among IP and Non-IP Children in a Barangay, CBMS site, 2002

<table>
<thead>
<tr>
<th>Purok</th>
<th>Children Aged 6-16 Years Old</th>
<th>Children Aged 6-16 Years Old in School</th>
<th>Participation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>548</td>
<td>351</td>
<td>64.1</td>
</tr>
<tr>
<td>Male</td>
<td>289</td>
<td>178</td>
<td>61.6</td>
</tr>
<tr>
<td>Female</td>
<td>255</td>
<td>173</td>
<td>67.8</td>
</tr>
<tr>
<td>IP</td>
<td>116</td>
<td>48</td>
<td>41.4</td>
</tr>
<tr>
<td>Male</td>
<td>63</td>
<td>25</td>
<td>39.7</td>
</tr>
<tr>
<td>Female</td>
<td>55</td>
<td>23</td>
<td>41.8</td>
</tr>
<tr>
<td>Non-IP</td>
<td>428</td>
<td>303</td>
<td>70.8</td>
</tr>
<tr>
<td>Male</td>
<td>229</td>
<td>153</td>
<td>66.8</td>
</tr>
<tr>
<td>Female</td>
<td>201</td>
<td>150</td>
<td>74.6</td>
</tr>
</tbody>
</table>

Source of Figure: Reyes, Mandap, and Ilarde (2005)

CBMS data can be used to compute for generating other poverty measures such as composite poverty.
indices (See for example Reyes, Ilarde, Valencia & Bancolita, 2004; Bancolita & Alvarado, 2006; Reyes and Mandap, 2019). It can be used to generate multidimensional poverty index (MPI) for SDG monitoring at the local level and identify and examine specific areas of priority needs for program action (Reyes, et. al, 2016). CBMS data is also used for examining correlates of poverty (See Reyes and Ilarde, 1998; Arcilla, Co, & Ocampo, 2011; Mina and Barrios, 2010; Sobreviñas, 2017).

Since 2005, the National Statistical Coordination Board (NSCB) through NSCB Resolution No. 6 Series of 2005 has recognized CBMS as a viable and cost efficient system that can be used to generate the Core Local Poverty Indicators (CLPIs) and ensure uniformity and standardization of CLPI databases of all LGUs. By 2006, the Social Development Committee (SDC) spearheaded by the National Economic and Development Authority (NEDA) issued resolution no 3 series of 2006, adopted the CBMS as the prescribed monitoring tool for the generation of the Core Local Poverty Indicator Database. It further enjoins national government agencies and LGUs to coordinate with the CBMS Network Team toward the fast-tracking and full implementation of the CBMS.

CBMS as a tool for generating core local poverty indicators complements the country's poverty monitoring systems by filling in the void of information at the local level and supplying disaggregated information to be able to diagnose poverty and identify the appropriate interventions to targeted beneficiaries at the local level (Panadero, 2015). A study by Reyes, Tabuga, Mina and Asis (2015), in the context of promoting inclusive growth through the national government program on 4Ps, recommended that partnering with local government units (LGUs) in implementing CBMS may be a more practical and cost-effective solution of collecting data from the families and individuals on a regular basis and would facilitate convergence of national and local efforts to reduce poverty.

**Gender and Development**

CBMS also facilitates the generation of data for examining gender and poverty (see Reyes, Mandap, Ilarde, Asirot, Valencia, & Robielos, 2004; Budlender, Reyes & Melesse, 2005). For instance, in Escalante City, the LGU-CBMS data has helped the local government in identifying priority areas of concern in poverty reduction, provision of basic education, delivery of basic health services, provision of decent shelter and security of tenure, and women empowerment (Reteracion, 2009). The LGU has also undertaken some policy shift as a result of CBMS data analysis particularly in utilization of 50% of its development fund for barangay development assistance. In the Municipality of Torrijos in Marinduque, CBMS data was also found to be useful for determining and analysis of gender issues affecting women and vulnerable sectors of the community and for the utilization of the 5% GAD budget of the municipal local government unit (LGU Torrijos, 2010).

**Monitoring the MDGs and SDGs**

Many local governments in the country have used CBMS for localizing the millennium development goals (MDGs) in local plans, budgets and programs (See for example Alvarez, 2005; Londonio, 2005;
Raymundo, 2008; Guyguyon, 2008; Luistro, 2011; Plaza, 2011; Afable et al, 2011). For instance, to achieve the MDG targets in every family in every barangay, the City Government of Pasay implemented the CBMS to identify the poor, to know where they are and why they are poor. Strategic programs and projects as well as service providers were identified for immediate implementation based on the findings drawn from the LGU’s CBMS data (See NEDA and UNCT, 2007). Guyguyon (2008) notes that CBMS data helps in focused targeting because it is both area- and client-based, thus allowing for efficient use of resources. It also enables us to identify specific areas, barangays, puroks or households which are most in need.

In the context of MDG localization, the League of Municipalities of the Philippines (LMP) issued a memorandum circular in 2006 enjoining all municipalities to institutionalize and adopt CBMS as part of the system of local governance particularly as a tool for local poverty diagnosis and to ensure the incorporation of the MDG targets and in the formulation of local development plans.

Through CBMS, the country was able to produce its first sub-national MDG report in 2015. The sub-national reports, prepared by the local government units using CBMS data, included local MDG profiles of 10 Provinces covering Agusan del Norte, Agusan del Sur, Biliran, Camarines Norte, Eastern Samar, Marinduque, Romblon, Sarangani, and Siquijor. Additional local MDG reports using CBMS data were also produced by other local governments including the Provinces of Benguet, Ifugao, Kalinga, Occidental Mindoro, Oriental Mindoro, Southern Leyte and Surigao del Sur as well as Puerto Princesa City, Pasay City, and Valenzuela City.

CBMS can likewise be used a tool for local governance diagnostics in the context of monitoring the sustainable development goals (SDGs) particularly for generating local SDG indicators, needs assessment, identifying sub-groups of population who are lagging behind, and prioritization of needed interventions (See Reyes, Mandap and Quilitis, 2020; Reyes, Mandap, Quilitis, and Calubayan, 2018; Sumabal, 2018; Loyola, 2019). The City Government of Panabo and the Municipal Governments of Carmona were able to produce the local SDG reports using their existing LGU-CBMS data bases and align their programs and budgets given the identified needs (see Sumabal et. al, 2020 and Purificacion et al., 2020).

A joint memorandum circular of the DILG-NEDA (JMC 2018-01) issued in 2018 meanwhile recognized CBMS among other LGU databases that can provide means to monitor performance in terms of the SDGs, given limitations in disaggregation of the Philippine Statistics Authority (PSA) data at the city and municipal level. The national government circular particularly aims to provide guidelines on the localization of Philippine Development Plan (2017-2022) Results Matrices and the Sustainable Development Goals (SDGs).

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5 https://www.pep-net.org/localizing-mdgs
Disaster Risk Preparedness and Climate Change Adaptation

The use of CBMS for generating data for disaster risk planning and program implementation, and for monitoring impacts of climate change at the local level was first pilot tested by the CBMS Network in the Philippines in 2009. The pilot test resulted to the identification and pre-test of data and indicators on DRR and CCA that can be monitored and generated at the local level through CBMS.

CBMS data has helped local governments in the Philippines to improve their preparation of disaster preparedness plans and related programs (See for example Bautista, 2018; Madla, 2018).

Crisis Monitoring

CBMS data is useful for crisis impact monitoring (Reyes & Mandap, 1999; Reyes, Sobreviñas, & de Jesus, 2009; Reyes, Albert & Reyes, 2018). This was first illustrated for a study looking at the impact of the Asian Financial Crisis and the El Niño in 1997 and 1998. A second round of CBMS survey was conducted in Pandi, Bulacan in 1999. The survey was used to look at the impact of the Asian financial crisis and the

CBMS facilitates more focused program targeting by providing necessary disaggregated data that identifies and locates households or individual who are health poor, nutrition poor, housing poor, water poor, sanitation poor, education poor, income poor, job poor, and/or security poor at a particular point in time.

Program Targeting

CBMS facilitates targeting of eligible program beneficiaries. Earlier studies (Reyes, Manasan, Orbeta, and De Guzman, 1999) have pointed out how CBMS can improve the targeting scheme being employed by the government in its poverty alleviation projects. The CBMS is recognized to be very useful for identifying the poorest families in each locality. A study by Reyes (2006) showed, for instance, how data sourced from CBMS can be used for employing alternative means test in evaluating the criteria for identifying Philhealth beneficiaries to addresses the problem of under-coverage/exclusion of possible eligible beneficiaries from the program.

With the impacts of the recent global Covid19 pandemic, local governments with existing CBMS databases in the country were able to determine and locate the eligible beneficiaries in their locality for the implementation of COVID-19-related social amelioration and relief programs⁶. In particular, LGUs were able to use their CBMS data to prioritize and target:

- Income and/or Food Poor. Households and families with income below the poverty and/or food threshold;
- Informal Economy Workers: Such as (1) Directly Hired or Occasional Workers - Persons who are contracted to do work on an irregular basis, hired by the direct recipient of the service and whose salary is completely dependent upon the completion of the particular work for which he or she was hired (e.g. laundry maid); (2) Family Enterprise Owners - Families operating or managing small businesses such as retail, food production, and vending; (not limited to owners of carinderia, fruit or vegetable vendors and vendors in streets, RTW, etc.); (3) Farmers, Fisherfolks, and Farm workers - persons engaged in agriculture and fisheries related activities, farm services and secondary processing whose monthly family income falls under the poverty line;
- Indigenous Peoples;
- Persons with Disabilities;
- Senior Citizens;
- Solo Parents;
- Underprivileged sector or homeless particularly households without own housing facilities or living in makeshift dwelling units and do not have security of tenure

**Impact Analysis**

CBMS generates the necessary data that can be used for examining the impacts of economic and other policy shocks at the local level. It has been used for conduct of research studies on the socioeconomic and poverty impacts of the 1997 Regional Financial Crisis (Reyes and Mandap, 1999), and the 1998 El Nino phenomenon (Reyes and Ilarde, 1999), the rise in food and fuel prices on poverty and the global financial crisis (Reyes, Sobreviñas, Bancolita, and de Jesus, 2010), and for vulnerability risk mapping on the impacts of climate change on food security (Reyes and Quilitis, 2015; Reyes, Bancolita, Leyso and Calubayan, 2017).

CBMS data from sentinel sites have been found useful for examining government policies relating to social protection (Conchada and Tiongco, 2017), youth employment and entrepreneurship (Conchada, Tiongco, Castillo & Edralin, 2017; Perez, 2016; Cabuay, 2016, Rivera and Gozun, 2016)
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1. Context and Rationale for the Implementation of CBMS

1.1. Background

Initiated in the middle of 1996, the development of CBMS in Vietnam evolved from a research project on “Rural Poverty Monitoring in Vietnam” which aimed to develop a methodology of poverty monitoring in rural areas which is based on participatory principles.

Despite of successes in economic growth and restructuring, poverty still remains one of the most actual problems in the development process in Vietnam. At the time when CBMS was first being developed in the country, a significant percentage of population are low-income earners with purchasing power below the desired standard. This segment of the population also lack capital for production. Underemployment is very serious in both urban and rural areas. The tendency of increased differentiation in income earnings coupled with the low access capacity of the poor to public services such as education and training, and medical services are also observed. Poverty was also more serious in rural areas where about 80% of Vietnamese are living.

For policy purposes the foremost issue is poverty monitoring. There was a great demand of governmental authorities and non-governmental organizations for poverty measurement and assessment. Several living standards monitoring surveys with different methodologies have been conducted in Vietnam but they have been reaching different statements on poverty rate.

While Vietnam is considered as one of the best countries in dealing with poverty, the achievements are seen to be fragile. The country still has to overcome many challenges in the poverty reduction process. Falling again into poverty is still common. The disparity in income and living standard between rural and urban, mountainous and plain areas, between different strata, between the poor and the rich provinces tends to increase. Poverty continues to exist in regions, communes and villages. Apart from infrastructure, the quality of social services, especially healthcare, education, clean water supply and family planning in the poor areas and communes still need improvement.

Poverty reduction is the first priority in Vietnam socio-economic development strategy. Vietnam Government has implemented many policies and socialized the work of hunger eradication and poverty reduction. Not only the Central Government, but the whole system of local authorities has to consider poverty reduction as one of the most important tasks.

Carrying out surveys and collecting data to assess the current state and changes in poverty and analyzing the impacts of poverty reduction policy and solutions, are important in the process of poverty reduction. It makes the policy-making agencies, social organizations, community, and the poor themselves more aware of the poverty. There exist several questions on poverty situations, trends, and reasons to be addressed (e.g. What is the poverty rate? How has the number of poor households changed? In what dimensions are the poor and different social groups considered poor
in? How has the gap between different strata changed in the current economic growth? What proportion of the poor can benefit from the increase in social welfare?).

Theoretically, these questions can be addressed by analyzing data from regular household living standard surveys. However, in practice, the scale, content and time of these surveys cannot fully meet the information requirement of multi-dimensional approaches of poverty assessment. The government agencies, social organizations, especially at the local (provincial, district and community) levels, must keep a close eye on poverty, requiring other approaches to collect more data to add to the information of household living standard surveys. Community-based poverty monitoring system (CBMS) is such an approach.

1.2. Local Government Structure

How is Vietnam’s administrative system set up in the first place? And what kind of information are needed by which level?

The structure of Vietnam’s administrative system includes:

- The central government;
- 61 provinces and cities;
- 602 districts and towns;
- 10,510 rural communes and urban wards.

There are 4 tiers of Vietnam’s administrative system: central government and 3 local government tiers, which are provinces (60 provinces and 4 big cities), districts (602 districts and towns) and rural communes and urban wards (10,510). In communes and urban wards, there are one or two lower tiers of settlement more: hamlet or village in rural areas, cluster in urban areas; but these tiers are not administrative unit, e.g. they have no public administration apparatus. The population of hamlet, villages or urban cluster selects a head of their community, who manages public works of the community. Besides, social and mass organizations (the Women’s Union, the Farmer’s Union, the Youth Union, etc.) operate in almost settlement units in Vietnam. They participate in decision of important issues of society and conduct many community works. They are also important users of socioeconomic information, especially data of poverty and living conditions of population.

At the provincial and district level, the statistic offices have the function of collecting information from the commune level, calculating and reporting the major statistic indicators about socio-

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1 Draws from Vu and Vu (2005)
economic development of provinces and districts. These figures can hardly be available at the commune level.

At grassroots levels (commune, village, hamlet), the socio-economic figures are not kept systematically, but mainly in periodical reports. The statistics staff in commune administration is not professional and does not have enough necessary skills. Therefore, when data for policy planning or policy impact evaluation are needed, the officers of administration or leaders of social organizations have to collect information themselves and keep it in their diary or private profiles. Most of the officers of administrative authorities and social organizations at the commune level are voted by term election. This results in a constant change of personnel. The basic data of local development cannot be collected and kept systematically.

1.3. Review of Existing Monitoring Systems

There are two data sources which are used in parallel for poverty monitoring purposes in Vietnam. These are: (1) the households living standard surveys (VLSS), carried out by the General Statistical Office (GSO), and (2) the community-based poor household identification and reporting system, conducted by localities under requirements of the Ministry of Labour, Invalids and Social Affairs (MOLISA).

(1.) Household living standard surveys: The household living standard surveys have been carried out by GSO for a long time, but there have been some changes in the method. Since the first Vietnam Living Standard Survey (VLSS) in 1992-1993 based on the method of the World Bank, similar ones have been carried out by GSO in collaboration with the local statistics departments. The basic data collected in these surveys are household income and expenditures. Two main kinds of household surveys carried out by GSO in the last several years are: Vietnam Living Standard Surveys (VLSS) and multi-purpose household surveys.

VLSS has been carried out 3 times in 1992-1993, 1997-1998 and 2002-2003. The 1992-1993 survey was on 4000 households, the 1997-1998: 6000 and the 2002-2003: 75,000 (of which 30,000 households were surveyed on both income and expenditures, while the rest were focused solely on income). The sample was chosen at random. VLSSs were implemented with the financial and technical support from international sponsors.

Multi-purpose household surveys were carried out by GSO in 1994, 1995, 1997, 1998 with the sample scope of 47,700 households in 1,590 rural communes and urban wards, which represent 61 provinces and cities. The content and method of these surveys were similar to VLSS, but was funded by the Government.

Household living standard surveys provided crucial general information to assess the situation of the people in the whole country as well as in each region. They also provided valuable data to
estimate the poverty level of inhabitants in urban and rural areas. Many scientific studies using this data have provided useful recommendations for international sponsors to orient their strategy of sustainable poverty alleviation and hunger eradication in Vietnam.

One characteristic of these surveys is that data collection is implemented by GSO’s officials, in collaboration with local officials, while data analysis is only done by GSO’s officials since the data system, index system, and analyzing techniques are quite complicated. This kind of survey has some disadvantages:

- The information from the survey mainly serves the work of the central government agencies, researchers and international organizations because the VLSS indicators reflect the general situation of the whole country and large areas (urban- rural, large regions). The survey sample does not represent provinces and social groups by occupation and ethnicity. In order to overcome this disadvantage, the third living standard survey (conducted in 2002-2003) increased the sample scope to 75,000 households, expecting the indicator set would represent situation of all 61 provinces; however, this made the survey cumbersome and the process of collecting and analyzing the data might deteriorate. It also created the danger that the supply of original data to different users becomes much more complicated.

- The participation of local people in collecting and analyzing information is very limited. They have no chance to make use of this data because the analyzing technique is too complicated and the result of nationally sampled survey is too general for them to use in daily local management.

- The cost of surveys is relatively high (especially for VLSS), so that they cannot be implemented regularly. The result of data processing is released after a long period of time (1-2 years).

- As sampled surveys, these living standard surveys cannot supply the exact address and name list of poor households in each area as well as the locally particular information about poverty. As a result, they do not meet the information requirement of planning, implementation and monitoring of poverty alleviation at each local area.

(2.) **Community-based identification of poor households:** This kind of poverty assessment has been carried out annually by MOLISA and its local offices at provincial and district levels, and commune governments. This assessment aims to collect information such as housing, property, land, and above all, household annual income in order to sort out and update the list of poor households in each village and commune. MOLISA has implemented this survey since 1995.

In order to carry out this survey, MOLISA states a poverty line for each period. The MOLISA instructs the survey methods and supplies localities with sample questionnaires. Based on the
instructions of MOLISA, provincial Departments of Labour, Invalids and Social Affairs in cooperation with other related provincial department (statistics, agricultural, planning and investment, etc.) instruct districts and communes on survey procedures.

Identification of poor households is a kind of census, covering all low-income households. While preparing for the survey, communes initially classify households by the living standard primarily based on individual observation of the commune’s and village’s leaders. All households, which have low income or are considered to have lower average levels of living standards, will be on the list of the survey.

The government staff and representatives of mass organizations in each village and communes directly interview the households. The main conclusion drawn from the questionnaires is the average income per capita in a month. This is the main indicator used by MOLISA as a poverty line.

After having completed the questionnaires, the Council for Poverty Alleviation in every village and commune hold a village meeting to get the inhabitants’ opinion to identify which household must be considered as poor. In this meeting, the list of under-poverty-line households will be given. Representative of all households in the village will discuss and give comments on each household. They rely not only on the result of the income survey but also on their own assessment about their neighbors’ asset, income and living standards. The outcome of this meeting is a final list of poor households in this village. The commune will gather these lists of all villages in the commune and report them to the district.

Such kinds of poverty census are not implemented annually, but in the year the new poverty line is given, the year 2001 for instance. Based on the list of poor households of the year 2001, in every later year, each village reconsider the living standard of every household to see which one has overcome poverty and which one has recently fallen into poverty, and then update the list. A survey on income is rarely implemented, only when there is a household which either has just overcome poverty or just fallen into poverty. This process of poor household identification is carried out annually, or each 6 months in several places. The list of poor households in each village, which includes addresses and names of all members in the poor household, is to be kept in 3 copies - in the commune, district and provincial government agencies. Based on this list, the governmental system distributes the resources of poverty alleviation and development programmes. Those households which are considered poor receive a certificate to show when they need support in, for example, getting free health care, preferential loans (not necessary to have a mortgage and with low interest rates), from bank, etc.

The advantages of this system are the following:

- The communities have a good understanding of the living conditions of poor households. They can be directly involved in analyzing the poverty causes of each household, decide which households are poor, and guarantee the transparency and the democracy in implementing policies and using resources provided for support to the poor. The people
participate in discussions on poverty reduction activities in their commune and village; therefore, they can enhance their position in deciding the community's affairs. On the other hand, by taking part in identifying the list of poor households, the people can easily monitor the implementation of supporting policies and ensure that the government's support can go to the right addresses effectively.

- The expense for this system is not big, because it uses local human resources and integrates the poverty monitoring activity into responsibilities of local authorities and social organizations. In fact, the government only pays very little for the printing of questionnaires, report forms and for training cadres in the first poverty census. The checking and updating the annual list of poor households are not paid, but considered as usual management work of local authorities.

The disadvantages of this system are the following:

- The information collected in the survey is simple, mainly used to consider household income. It fails to meet the demand of analyzing the real situation of multi-dimensional poverty. It does not show the impacts of poverty reduction policies and solutions.

- The gained information is not processed according to strict procedure. It is mainly done by cadres of villages and commune, therefore cannot be highly accurate.

- The subjectivity in identification of poor households is unavoidable. There exist two phenomena: when making reports on achievements one tends to reduce the poverty rate, but when applying for support from government, one unanimously raises the poverty rate. It's also not unusual that some local leaders strive to constrain the to-be-reported number of poor households in frame of planned figures. Controlling and auditing mechanisms of local reports do not exist. Therefore, the figure of poverty rate is often doubted.

- Due to different living conditions in localities, some local authorities decided to use the locally defined poverty lines, which are differed to MOLISA's standards. This created difficulties for data synthesis and comparison.

These two above-mentioned systems of poverty assessment exist in parallel and are used for different needs:

- Results of the living standard surveys are used in analysis and design of macro socioeconomic policies and in international comparison.

- Results of community-based poverty assessment are used in daily management of government system towards poverty reduction policies. The allocation of budget and other resources for poverty reduction target in localities as well as the plan making, the implementation of supporting methods for the poor and the evaluation of impacts of
poverty reduction policies are based on the lists of poor households, which are given by the localities.

Due to different methods of survey, data collection and processing, and due to different poverty lines, the proclaimed figures of poverty rates are different. This causes certain obstacles to the acknowledgement about the poverty situation and evaluation of poverty reduction policies. Since the second living standard survey (1997-1998), the food poverty line, which is approximately equal to the standard used by MOLISA, has also been conducted beside the overall poverty line. The food poverty rate is not much different from that of MOLISA. However, the different opinions on figures to be used for poverty assessment still exist among authorities and individuals.

In Vietnam, as in other developing countries, more specific information about target groups is needed at the lower management level. Unfortunately, the reality of the situation is that such kind of information—official or otherwise—are sorely lacking.

Moreover, the results of the VLSS and other nation-wide surveys reflect the situation of the whole nation and large areas and do not serve directly the work at grassroots levels. The community-based identification of poor households, on the other hand, provides local officers with constant information about the poverty situation in their places. If the data are collected carefully and the content reflects more aspects of life, these results can therefore be used to make plans, and implement and assess poverty reduction and community development measures.

The pilot implementation of the CBMS under the MIMAP-Vietnam project in 1996, covering selected communes has shown that the collection of basic information about socioeconomic situations in general and the poverty situation in particular is very helpful to the work of local officers and nongovernmental organizations. Data are systematized at the village and commune levels and can be used immediately by local people in development planning and poverty monitoring for years.

2. CBMS Design

2.1. Key features of CBMS in Vietnam

Various local partners have been involved in the implementation of CBMS. Some of these partners are as follows:

- In Ha Tay, Yen Bai and Quang Ngai, CBMS is applying by the Section of Social Protection belonging to the Departments of Labour, Invalids and Social Affairs (DOLISA) - a main executive agency for poverty reduction and social welfare in the province.

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2 VLSS2 stated that the food poverty rate in 1998 was 15% and approximately 10% in 2002. In the same time, poverty rate calculated by MOLISA’s poverty line was 15.7% in 1998 (the previous poverty line) and 11.1% in 2003 (the new poverty line).
• In Lam Dong, the professors and students of the Faculty for Social Works and Community Development, the Da Lat University have been cooperating with district government unit to conduct survey in ethnic minority communities.

• In Ninh Binh province, the Provincial Women Union is the executive agency for CBMS implementation. The Women Union is a non-governmental organization - one of nationwide network in all provinces in Vietnam, attracting and mobilizing the women into social, economic, political and cultural activities in order to improve the women’s living and to increase women’s role and position in the society. The Women Union has branches in all communes and district, and its representatives participate in policy-making process and monitoring policy implementation in localities.

The CBMS initiative in Vietnam, which was expanded in 2006 from its pilot in 1996, is managed by Socio-Economic Development Centre (SEDEC). In provinces where CBMS is implemented, focal persons from the following organizations managed the data collection, processing, validation and use of data:

- Departments of Labour, Invalids and Social Affairs, Ha Tay Province (led by the Head of Social Protection Division).

- Department of Labour, Invalids and Social Affairs, Yen Bai Province (led by the Head of Social Protection Division).

- Department of Labour, Invalids and Social Affairs, Quang Ngai Province (led by the Head of Social Protection Division).

- Centre for Poverty Reduction (CPR), Da Lat University, Lam Dong Province (led by the Dean, Faculty of Social Works and Community Development, Director of CPR).

- Women’s Union of Ninh Binh Province (led by the President of the Women’s Union of Ninh Binh Province).

District LGUs also participated in the organization of the survey.

The local CBMS research team from SEDEC has worked with city/provincial/district administrative offices to:

• Explain purposes, methodology and contents of CBMS and poverty observatories;

• Select communes and then discuss with local authorities to select hamlets and households;

• Conduct training for local surveyors;

• Supervise the process of data collection;
2. Check fulfilled questionnaires at localities, to code and to ensure the quantity and quality of the collected data; and

- Encode and process data and do analysis.

2.2. Adjustment of CBMS Methodology to Vietnam’s Context

2.2.1. Core Poverty Indicators

Poverty is a multidimensional phenomenon and proved not only in household income or expenditure. Therefore, in the experimental CBMS system, which was initiated under the MIMAP-Vietnam research project, poverty is comprehensively reflected through a set of monitoring indicators which show both value indicators (income and expenditure) and basic needs of households (e.g. food intake, clothing, accommodation, transportation, and access to other basic social services). There are 2 main sets of indicators: household living standards (see Table 1) and community situation (see Table 2).

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household’s Resources</td>
<td>Land, laborers, and productive means</td>
</tr>
<tr>
<td>Employment</td>
<td>Sectoral structure of occupation</td>
</tr>
<tr>
<td></td>
<td>Status of employment</td>
</tr>
<tr>
<td>Housing</td>
<td>Type of dwelling</td>
</tr>
<tr>
<td></td>
<td>Access to safe water</td>
</tr>
<tr>
<td></td>
<td>Access to sanitary toilets</td>
</tr>
<tr>
<td></td>
<td>Access to electricity</td>
</tr>
<tr>
<td>Income</td>
<td>Average income per capita</td>
</tr>
<tr>
<td></td>
<td>Household’s income structure</td>
</tr>
</tbody>
</table>
### Expenditures

Expenses for basic needs: food, clothing, housing, transportation, education, health care, social and community relationship, etc.

### Education

- Illiteracy ratio
- School enrolment ratio of primary-school-age children
- Number of televisions and radios

### Health

- Proportion of chronically sick people
- Proportion of people with access to medical services

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**Table 2: CBMS Core Indicators, Community level, Vietnam, 2004**

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
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</thead>
<tbody>
<tr>
<td><strong>General Living Standard</strong></td>
<td></td>
</tr>
<tr>
<td>Poverty rate</td>
<td></td>
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<tr>
<td>Value of a working day</td>
<td></td>
</tr>
<tr>
<td><strong>Land</strong></td>
<td></td>
</tr>
<tr>
<td>Agricultural land area per capita</td>
<td></td>
</tr>
<tr>
<td>Ratio of households without or in lack of land</td>
<td></td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
</tr>
<tr>
<td>Proportion of people who are unemployed and underemployed</td>
<td></td>
</tr>
<tr>
<td>Proportion of workers in agricultural and non-agricultural sectors</td>
<td></td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
</tr>
<tr>
<td>Ratio of malnourished children</td>
<td></td>
</tr>
<tr>
<td>Ratio of child deaths</td>
<td></td>
</tr>
<tr>
<td>Capacity of commune medical stations</td>
<td></td>
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<tr>
<td>Number of medical staff per 1,000 people</td>
<td></td>
</tr>
</tbody>
</table>
Other indicators related to the implementation of poverty reduction policies and measures were also included. These covered:

- Poverty rate and assessment on reasons of poverty
- Support to the poor in health care
- Support to the poor in education
- Support to the poor in improving housing conditions
• Provision of credit to the poor
• Training and agricultural extension
• Other measures of safety nets

In 2006, the CBMS survey tools have been used for identifying the score indicators on basic needs (foods, shelters, electricity, safety water, education, health), household's income and application of Governmental poverty policies. There are some indicators which were added depending on the local situation. CBMS indicators set has also been adjusted to monitor implementation of Millennium Development Goals (MDG) such as eradicate poverty and hunger (G1), primary education (G2), gender equality (G3), child mortality (G4), maternal health (G5) and combat HIV/AIDS, malaria (G6).

**Table 3: CBMS Core Indicators, Vietnam, 2006**

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td>Number of households</td>
</tr>
<tr>
<td></td>
<td>Number of people (total, male, female)</td>
</tr>
<tr>
<td></td>
<td>Population by ethnicity groups</td>
</tr>
<tr>
<td></td>
<td>Population by age groups</td>
</tr>
<tr>
<td><strong>Characteristics of Households</strong></td>
<td>Size of households</td>
</tr>
<tr>
<td></td>
<td>Number of women-headed households</td>
</tr>
<tr>
<td></td>
<td>Vulnerable groups (households with vulnerable people)</td>
</tr>
<tr>
<td><strong>Natural Capital of Households</strong></td>
<td>Land ownership by type of land</td>
</tr>
<tr>
<td></td>
<td>Land use (main crops)</td>
</tr>
<tr>
<td><strong>Physical Capital of Households</strong></td>
<td>Ownership of productive machinery and tools</td>
</tr>
<tr>
<td></td>
<td>Ownership of consumption durables</td>
</tr>
<tr>
<td><strong>Human Capital of Households</strong></td>
<td>Professions of people</td>
</tr>
<tr>
<td>Category</td>
<td>Details</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Education level of people</td>
<td></td>
</tr>
<tr>
<td>Health situation of population</td>
<td>(number of sick days, child mortality, maternal health, HIV/AIDS)</td>
</tr>
<tr>
<td>Access to healthcare facilities</td>
<td></td>
</tr>
<tr>
<td>Economy of Households</td>
<td>Outputs of main economic sectors (cultivation, animal livestock, fishery, etc.)</td>
</tr>
<tr>
<td>Income</td>
<td>(structure of income sources, income level)</td>
</tr>
<tr>
<td>Living Conditions</td>
<td>Housing</td>
</tr>
<tr>
<td></td>
<td>Access to safe water</td>
</tr>
<tr>
<td></td>
<td>Access to electricity</td>
</tr>
<tr>
<td></td>
<td>Access to sanitation facilities (toilet, washing room)</td>
</tr>
<tr>
<td>Poverty</td>
<td>Poverty rate</td>
</tr>
<tr>
<td></td>
<td>Poverty characteristics (ethnic groups, gender groups, age groups)</td>
</tr>
<tr>
<td></td>
<td>Reasons of poverty</td>
</tr>
<tr>
<td>Implementation of Poverty</td>
<td>Support for education of poor children</td>
</tr>
<tr>
<td>Reduction Programs and Measures</td>
<td>Support for healthcare</td>
</tr>
<tr>
<td></td>
<td>Support for improvement of housing</td>
</tr>
<tr>
<td></td>
<td>Credit provision</td>
</tr>
</tbody>
</table>

### 2.3. Data Collection

#### 2.3.1. Data Collection Instruments

The major tools for data collection in the implementation of CBMS are questionnaires. There are two types of questionnaires: the household questionnaire and the commune questionnaire. CBMS questionnaires, developed from earlier pilot implementation in Vietnam under MIMAP, were
further refined to include the additional indicators identified for the implementation of CBMS in 2006-2007.

The main tool of CBMS survey was household questionnaire containing the following information:

a) Accounting households in vulnerable groups, which need support from the government. (e.g. invalids, orphans, disabled people, etc.)

b) Information of family members, such as education level, occupation, demographic characteristics (Analysis, for example, of education showed knowledge poverty (adult illiteracy, child drop-out schooling))

c) Information on property ownership: land, durable productive and consumer goods (In particular, productive property poverty (lack of land, productive machines), information poverty (no ownership of audio-video equipment) and communication poverty (no ownership of transport means))

d) Housing conditions: shelter, types of drinking and washing water, toilet (This information reflected housing poverty and health poverty)

e) Income reflected living standard of households (Comparing this data with poverty lines, one can see food poverty and overall poverty)

f) Causes of poverty

g) Support, which households received from the State and communities (This information reflected efforts of government and communities in poverty reduction, and helped to analyzing impacts of poverty reduction program on the poor)

2.3.2. Identification and Training of Local Enumerators and Supervisors

Enumerators are selected from localities, including district authorities, commune administration, hamlet/village heads, activists of social organizations and local intelligence (teachers, medicine doctors, retired government officers). Local administration appoints enumerators.

In the CBMS implementation in 2006-2007, a number of local staff have basic knowledge and skill of survey. For instance, some local authorities have been trained and assigned regularly to conduct national and provincial socio-economic surveys, such as population census, rural and agricultural census, survey for poverty identification, etc. The provincial authorities like Department of Labour, Invalids and Social Affairs, Department of Statistics, Department of Agriculture and Rural Development used to be in charge of organization of such surveys, including training and supervise of data collection. It is a favorable condition for the CBMS implementation.
Surveyors used to be selected from district authorities, commune administration, hamlet/village heads, activists of social organizations and local intelligence (teachers, medicine doctors and retired government officers). The local partner-organization, which is implementing CBMS agency, appoints surveyors.

2.3.3. Study Area and Coverage

The pilot CBMS initiative in Vietnam involved the implement CBMS in some poverty observatories to serve the data requirements of National Programme for Hunger Eradication, Poverty Reduction, and Job Creation. Poverty monitoring surveys are planned to be conducted in 3 years (2002-2004), at the end of each year, and are conducted in the same time (months) and with the same samples (communes and households).

The selected communes had to be representative of: (1) major geographical types of the country, in particular delta regions, high and low mountain regions, coastal regions, suburban regions, and small/medium/big urban centers; (2) different types of inhabitant communities (rural and urban areas); and (3) ethnic groups.

Table 4: Classification of surveyed communes by geographical types and regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Hill and low mountains</th>
<th>High mountains</th>
<th>Delta</th>
<th>Coastal</th>
<th>Sub-urban</th>
<th>Urban ward</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast Mountains</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Northwest Mountains</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Red River Delta</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>North Coast</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>South Coast</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Central Highland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Eastern South</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Mekong River Delta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

In 2002, in collaboration with the Managing Office of the Vietnam National Target Programme for Hunger Eradication, Poverty Reduction and Job Creation (HEPRJC), a system of poverty observatories was selected, including 20 communes of 12 provinces which represent all large regional areas of Vietnam. CBMS was applied in these communes to collect data from more than 4,000 households, with 20,000 people, of which 78.5% is of the Kinh ethnic (majority ethnic) group, 21.5% belongs to minority ethnics.
Table 5: Households and people classified by areas and types of communes

<table>
<thead>
<tr>
<th>Types of Communes</th>
<th>Households</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Magnitude</td>
<td>Proportion</td>
</tr>
<tr>
<td>Urban area</td>
<td>612</td>
<td>15.2</td>
</tr>
<tr>
<td>Communes in delta area</td>
<td>812</td>
<td>20.2</td>
</tr>
<tr>
<td>Communes in suburban area</td>
<td>610</td>
<td>15.1</td>
</tr>
<tr>
<td>Coastal communes</td>
<td>600</td>
<td>14.9</td>
</tr>
<tr>
<td>Communes in hill and low mountainous area</td>
<td>791</td>
<td>19.6</td>
</tr>
<tr>
<td>Communes in high mountainous area</td>
<td>604</td>
<td>15.0</td>
</tr>
</tbody>
</table>

In 2003, CBMS implementation in Vietnam covered two provinces. In Ha Tay province, 30 communes in all 13 districts are considered as provincial poverty observatories. A sample survey, which covers 3,700 households and 16,000 persons, has been conducted. In Yen Bai province, 10 communes in all 8 districts are selected as provincial poverty observatories. A census has been conducted and 9,000 households with 40,000 persons have been surveyed.

In 2006 to 2007, the CBMS implementation covered 41 communes in five provinces (see Table 6).

Table 6: Scope of CBMS implementation in Vietnam, 2007

<table>
<thead>
<tr>
<th>Region</th>
<th>Province</th>
<th>Number of districts</th>
<th>Number of communes</th>
<th>Number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red River Delta</td>
<td>Ha Tay</td>
<td>10</td>
<td>10</td>
<td>10,016</td>
</tr>
<tr>
<td></td>
<td>Ninh Binh</td>
<td>1</td>
<td>13</td>
<td>16,725</td>
</tr>
<tr>
<td>Northern Mountains</td>
<td>Yen Bai</td>
<td>1</td>
<td>7</td>
<td>6,314</td>
</tr>
<tr>
<td>South Central Coast</td>
<td>Quang Ngai</td>
<td>1</td>
<td>5</td>
<td>6,382</td>
</tr>
<tr>
<td>Central Highlands</td>
<td>Lam Dong</td>
<td>1</td>
<td>6</td>
<td>3,500</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>14</td>
<td>41</td>
<td>42,937</td>
</tr>
</tbody>
</table>

- Ha Tay province represents for provinces in the northern delta (the Red River Delta). This province has 1.5 million populations, 14 districts (2 towns and 12 rural districts), and 320 communes. With the aim to supply data for assessment of poverty in accordance with the new national poverty line, the CBMS initiative provided technical support to local authorities to conduct a census in 10 selected communes, which represent different types of communities in the province. Data collected from this census of 10,016 households has been used as baseline poverty assessment of the 5-year period 2006-2010.

- Yen Bai province represents for provinces in the northern mountainous area. This province has 0.8 million populations, 10 districts (2 towns and 8 rural districts), 110 communes. The project provided technical support to local authorities to conduct a census in one district (4
urban and 3 rural communes). The number of households is 6,314.

- Lam Dong province is located in the southern mountainous region. This province has 1.2 million populations, 12 districts (2 towns and 10 rural districts), 146 communes. There are some ethnic minority groups living in the province. The project piloted CBMS (census) for one district (5 communes) where the ethnic minority population lives. The total number of survey households is approx. 3500.

- Quang Ngai province is located in the southern central coast region. It's one of the poor province. This province has 1.2 million people, 14 districts (1 town, 13 rural districts, including 1 island district). The project has piloted CBMS (census) for 5 communes in one district with total number of households of 6382 households.

- Ninh Binh province is located in the Red River Delta, 90 km southern of Hanoi. The province has 2 towns and 6 rural district with total population of almost 1 mill. The project co-operates with the Provincial Women's Union to conduct CBMS with aims to help the Women's Union to monitor the living standards of households in general and women's development issues in particular. A census has been conducted in 13 communes of one poor mountainous district with total number 16,725 households.

2.4. Data Processing

There are two stages in data processing in the CBMS implementation.

Firstly, localities process the collected data manually and generate some simple indicators, like poverty rate, types of housing, percentage of households getting support from poverty alleviation programmes and policies, etc. This information is used instantly for serving the local development planning and poverty reduction.

The collected data are processed using Excel software, a popular and easy to use program, especially for people in rural localities. Particularly, the CBMS Vietnam initiative has designed the processing software following two points:

- Formulating some sheets with output indicators which are automatically calculated by readily prepared formula (makes data processing easier for local use)

- Transferring this simple data processing software to locals so they can do their own analyses (can later on be popularized and used to process the data of a wide range of localities)

In accordance to the procedure of poverty monitoring defined by the Government (MOLISA), results of quick data processing (calculation of income and comparison with poverty line) were
validated at hamlet/village meetings, with aims to define the poor households and to assess implementation of the poverty reduction action plan.

Second step involved a deeper data processing and analysis conducted by the provincial officers and the local CBMS research team to generate data on more complicated indicators. The collected data is encoded in computer and processed using the Excel software. Staff of provincial authorities encoded the data. A short guide for data encoding and an encoding format were designed by the local CBMS research team and provided to provincial teams. An Excel file, which contains calculation formulas for major indicators, has been designed by local CBMS research team for this purpose. However, capacity of data processing of the local staff is still limited. Therefore, the main work of data processing in some provinces (Ninh Binh and Ha Tay) is conducted by research team. The results of data are submitted to the local partners.

2.5. Data Validation

Data set collected from the conduct of CBMS in the communes is analyzed with the aim to formulate the multidimensional poverty profile highlighting mountain/delta, geo-economic disparities, identifying specific socio-economic poverty groups, especially ethnic minority groups. The survey results have been referred by DOLISA of Ha Tay, Yen Bai and Quang Ngai, and Women’s Union of Ninh Binh province in the working reports and meetings.

Generally speaking, the results are valuable since the processed information from the data collected can provide additional information to the management of the National Program of Poverty Reduction. Many of main indicators are quite identical to the real situation in the surveyed communes. This identity can be recognized when comparing the CBMS results with the data stated by communes or the data collected by specialized governmental organizations.

Validation workshops were conducted in some communes where data processing was completed. The final results of CBMS survey in 4 provinces have been presented to experts of provincial and district authorities to get comments. Local participants discussed on the survey results, accuracy of the data collection and processing, problems of socio-economic development and raised recommendations on poverty reduction. The survey has been highly appreciated by the leaders of local implementing authorities (DOLISA of provinces, district government, Women’s Union).

3. Uses of CBMS

Multidimensional Poverty Monitoring

Earlier studies using CBMS data generated from selected sites in Vietnam (See for example Asselin and Vu (2003); Vu Tuan Anh (2010)) illustrated how CBMS can be used for generating a composite poverty index to make it easier to address regional poverty disparities. The Composite Poverty
Index (CPI), merged with the CBMS and dubbed as the CBMS-CPI, uses a set of CBMS indicators, namely, food poverty, dwelling poverty, information poverty, communication poverty, knowledge poverty and health poverty. Said CBMS-CPI has various advantages such as: (1) it can be used to measure and compare poverty across time and regions; (2) it contains major aspects of poverty, reflecting most of the targets in the national poverty reduction program, that can be used to monitor poverty reduction activities and programs; (3) the computing method is simple, easy to grasp and user-friendly; and (4) except for the income indicator, all the rest of the indicators can be based on collected data. “A CBMS Composite Poverty Index reflects the approach of multidimensional poverty. It can be used by local communities for analyzing different aspects of poverty, and for comparing multidimensional poverty across regions, localities, and times. A composite poverty index, that is constructed through a simple method and based on community-based survey data, is recommended to be implemented widely in poverty monitoring and evaluation of poverty reduction activities (Vu, 2010).

**Implementing Poverty Reduction Programs**

CBMS can be used by local administrations (province, district and commune), local NGOs, social organizations, and local people for identification of the poor households, assessing the poverty situation and implementation of poverty reduction policies and measures at the national level and in poverty reduction programs and projects.

Results of CBMS have been used at different administrative levels in the different sites where CBMS was implemented. Some of these are as follows:

**(i) Using CBMS in a poverty reduction project**

In 2001-2003, CBMS methodology was used for baseline survey (in 2001) and repeated monitoring surveys (in 2002 and 2003) in a Poverty Reduction Project in two mountainous districts of Thanh Hoa Province. In co-operation with CECI – the implementing agency of Canada, and district administration, CBMS was implemented in 34 communes (including 30 communes in the project areas and 4 communes outside the project areas). The survey sample was more than 1000 households. A baseline report and annual monitoring results were supplied to the project management unit and district administration and served as tools for poverty monitoring and evaluation of project activity impacts (Socio-Economic Development Centre, 2001).

**(ii) Using CBMS in the system of national poverty observatories**

In 2002-2004, the CBMS methodology was implemented in a system of poverty observatories so as to serve the data requirements of the National Programme for Hunger Eradication, Poverty Reduction, and Job Creation. Poverty monitoring surveys are to be conducted every year-end for
three succeeding years (2002-2004).

In 2002, a system of poverty observatories has been set up in 12 provinces and cities. There are 20 communes, where 17 are rural communes and three are urban wards. There are more than 4,000 households and 20,000 individuals in the sample, of which 78.5 percent is of the Kinh ethnic (majority ethnic) group and 21.5 percent belongs to the minority ethnic group.

Results of annual surveys were supplied to the Managing Office of the National Programme for Hunger Eradication, Poverty Reduction, and Job Creation. Analysis of some aspects of poverty and calculation of a composite poverty indicator were based on this CBMS database (Asselin & Vu, 2004; Vu, 2005).

(iii) Using CBMS in provincial system of poverty observatories

In 2004-2005, the Departments of Labor, Invalids ad Social Affairs of two provinces – Ha Tay and Yen Bai, have co-operated with the MIMAP research team to implement CBMS in provincial poverty observatory systems.

In Ha Tay, 30 communes in all 13 districts are considered as provincial poverty observatories. Two rounds of sample survey, which covers 3,700 households and 16,000 persons, has been conducted. Results have been used by local partners for analysis of poverty rate and different dimensions of poverty with aims to evaluate poverty reduction measures and readjust poverty reduction policies.

In Yen Bai, 10 communes in all eight districts are selected as provincial poverty observatories. Two censuses were conducted on 9,000 households consisting of 40,000 persons.

(iv) Using CBMS at district level

In 2006-2007, CBMS is implemented at the district level. In Yen Bai province, the town named Nghia Lo has been selected for setting up a database using CBMS methodology. This town consists of 4 urban wards and 3 rural communes.

Similarly, CBMS is conducted to create a baseline socio-economic database in 13 of 26 communes in district Nho Quan, five communes in district Nghia Hanh, and seven communes in district Lac Duong.

In Ha Tay, Yen Bai and Quang Ngai provinces, the CBMS was adopted by the Section of Social Protection belonging to the Departments of Labour, Invalids and Social Affairs - a main executive agency for poverty reduction and social welfare in the province.

In Ninh Binh province, the Women Union also used the CBMS data for assessing well-being of households, especially of women, and for monitoring activities of women’s movement in localities.
The Women Union is a non-governmental organization - one of national-wide network in all provinces in Vietnam, that mobilize women into social, economic, political, and cultural activities in order to improve the women's living and to increase women's role and position in the society.

**Improving Climate Change Responses**

CBMS can be used to monitor, determine and analyze climate change vulnerability at the local level. In particular, CBMS can be used to generate data requirements for vulnerability risk models to examine a community’s vulnerability in terms of exposure, sensitivity, and adaptive capacity. A study by Vu et al (2015) showed how CBMS can be used to collect data of communes in three pilot districts/towns in Vietnam for calculating climate change related indicators and sub-indices, and for computation of the climate change vulnerability index (CCVI) of communes and districts. The study was able to point out the factors that render some areas more vulnerable than others. This information is deemed valuable to help policy makers design adequate policies and solutions to respond to climate change problems, including to direct resources toward the areas with the highest vulnerability to climate change.

**4. Prospects and Strategies for Institutionalization of CBMS in Vietnam**

In order to institutionalize CBMS, close partnership has to be established between local CBMS researchers and governmental authorities, which are in charge of poverty reduction, and also with NGOs, which operate in localities.

Results of pilot implementation of CBMS indicate that, in general, the collected dataset including number of poor households and poverty rate is acceptable for poverty monitoring and policy impact evaluation.

Provinces, that have implemented CBMS, should be encouraged to have more observatories. Based on the comparison between CBMS results at three observatories in Ha Tay province and the annual poverty survey, which the provincial administration conducts in 30 communes with income method instructed by MOLISA, each province should have at least five poverty observatories to monitor the real situation of poverty at the provincial level.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

During the period of 2001-2002 a research project was undertaken, jointly by the Bangladesh Academy for Rural Development (BARD) and Bangladesh Institute of Development Studies, under Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) Bangladesh to develop some indicators and methodology for monitoring poverty at the local level. Drawing from the experience of pilot implementation in four villages under the MIMAP Project, BARD further refined the indicators and methodology developed under the pilot phase and implemented it in one Union of Muhammadpur (West), Daudkandi Upazila, Comilla covering all villages in the year of 2003-2006.

Said project was undertaken with support from the Poverty and Economic Policy (PEP)-Community Based Monitoring System (CBMS) research program.

The PEP supported CBMS project in Bangladesh aims to provide the required information for local government authorities at the grassroots level that would enable them to assess the poverty situation in their respective areas, to undertake need-based project or programme, and to serve the targeted population. Keeping the local government at the grassroots level at the central point, local people were involved in the process of data collection and data analysis. Among the specific objectives of the CBMS project is to implement the MIMAP-LLPMS on a regular basis at the local level, create a data base of local level poverty and development indicators and a mechanism for regular updating of the data base by the users themselves. Furthermore, it also aims to motivate and assist the local government functionaries to use the information generated by the LLPMS in initiating local level plans and develop sustainable linkages with government organizations, NGOs and the development partners for implementing the plan.

Poverty monitoring at the macro level in Bangladesh is conducted by the National Statistical Institute. The NSI provides data up to divisional or district level. The LLPMS, on the other hand, addresses the gap of information at the grassroots level by generating disaggregated poverty data at the household level.

As poverty is multidimensional, its causes also vary from one area to another so addressing poverty needs identifying the root causes of poverty properly. At the time of the development of CBMS (or the LLPMS) in Bangladesh, poverty remains to be a central piece of research agenda in the country with 40.9 percent people found to be living below the poverty line in 2004 highlighting significant urban and rural as well as regional disparities. The incidence of poverty differs from one region to another; the highest incidence of poverty recorded in the northern region (GOB 2005). A study by Guha, Kashem, Quader, and Mamun (2006) finds that poverty continues to be one of the main problems in Bangladesh where nearly 77 percent of the population lives in rural areas and thus for this reason policies prepared for different sectors concentrate more on poverty alleviation. The need
to monitor the dynamics of poverty has been highlighted by several studies to be able to take policy measures in reducing the poverty.

Monitoring poverty requires periodic review of dynamics of poverty thus the need for a mechanism to regularly generate information and indicators that would allow the examination of the effects of various plans and programs by analyzing and comparing the result of indicators. In Bangladesh, the Household Income and Expenditure Survey is conducted every four years to see the dynamics of poverty situation. To know the changes of poverty situation, Bangladesh also conducts Poverty Monitoring Survey on a yearly basis although this is not a regular activity. The results obtained through this survey is very helpful to know the poverty situation at the macro level and help to undertake policy at macro level. In most cases, the national survey provides aggregate information, and to some extent data disaggregation up to divisional level. At the time of conception of the CBMS Project – referred as Local Level Poverty Monitoring System (LLPMS) in Bangladesh, there is a lack of initiative to collect and classify information at the micro level which limits the determination of real situation at the grassroots level and taking necessary action by using the information. To bridge the gap of information, especially poverty information in rural areas, the LLPMS project was developed by BARD with a view to complement the poverty monitoring initiative at the national level in providing both poverty and development-related information that can help inform policy guidelines. The experimentation was carried out by BARD with the financial and technical support of IDRC-Canada through the Poverty and Economic Policy (PEP)-Community Based Monitoring System (CBMS) research program in 2003-2006 with the objective of creating a community based poverty monitoring system at the local level in Bangladesh while ensuring active participation of local government functionaries and their effective use of relevant information to be generated by the system.

1.2. Local Government Structure

Local Government at the union level is considered the focal point for sustainability of a poverty monitoring system. For monitoring poverty at local level, data collection and processing were done by the trained investigators under the direct supervision of the functionaries of Union Parishad. The Union Parishad has to perform six major functions: 1. civic responsibility, 2. police and defense function, 3. revenue and administrative functions, 4. development functions, 5. transferred functions, and 6. judicial responsibility.

Under the civic and development responsibility, the Union Parishad has to ensure utilization of local resources, sanitary latrine usages, recording of birth death and information about disabled and
destitute people and implementation of projects related to agriculture, education, health and physical infrastructure development. Moreover, they are responsible to conduct census and implement safety net program. However, due to lack of capacity of the union parishad, they are hardly able to do these functions effectively.

The pilot test and implementation of LLPMS in selected sites in Bangladesh was able to prove that if union parishad are acquainted with the process, and if they are motivated, the system can help them to perform their legal duties. The government has introduced Gram Sarkar (Village Government) having 13 members at ward level as a complementary organization of the Union Parishad. To help them perform their responsibilities, data generated through LLPMS will be very much helpful.

Local government institutions are responsible to look after the welfare of the people and these institutions are powerful, as those are formed under the constitutional framework. The local government institutions at the grassroots level are not able to appreciate and monitor rural poverty due to the complexity of its measurement, and lack of understanding about its potential benefits. Moreover, the lack of information at the grassroots level, and the lack of user friendly and cost-effective mechanisms for information generation inhibits the potential role of local governments in poverty alleviation.

If the functionaries of local government can be motivated on the importance of reliable information and the local people are trained on information generation, the local government would be able to appreciate the rural poverty. If the information generated are used for planning purposes, the effort of poverty alleviation would be fruitful. To help the reduction of the problem of poverty, implementing a cost effective system such as the CBMS (LLPMS in the case of Bangladesh) would be useful particularly for capacity building of the local people in data collection and data processing, and for motivating local functionaries to continue the adoption of the system, for use of the information generated by the system for planning and service delivery to the target population.

1.3. Review of Existing Monitoring Systems

At the national level, poverty in Bangladesh is monitored through the Household Income and Expenditure Survey (HIES) conducted every four years by Bangladesh Bureau of Statistics (BBS) Bangladesh. At the local level especially union level, there is absence of a systematic approach of monitoring poverty at the specific areas (Mamun, Mahmuda, Khan and Nahar, 2016).

The Households Income and Expenditure Survey (HIES) conducted by the Bangladesh Bureau of Statistics (BBS) every four years provides poverty related data and helps to know poverty situation
in Bangladesh. At the time of review of existing monitoring systems for the development of the LLPMS, the Cost of Basic Needs method and Direct Calorie Intake method are commonly used for poverty measurement. Poverty scenario at the national and regional level are assessed using these methods. However, it is very difficult to understand poverty scenario in a particular area, specifically at grassroots level using these methods. This hampers assessing poverty situation and taking corrective actions for reducing poverty at local level.

Poverty can be addressed through generating decent employment opportunity, increasing income through involvement in productive works, developing capacity to face crisis in a positive manner and hunting market opportunity, and reducing adverse effect of seasonal vulnerability etc. of a household. It is also true that some of the people would not be able to harness the opportunity of market due to their lack of capability or their livelihood would be in danger due to some vulnerability related to changes in technology, policy, economy and political situation. State comes forward with a package of safety net programme to protect them from further deterioration of their status. Information is needed to identify the strategies for generating productive employment opportunity, augmenting production, increasing capability and reducing vulnerabilities of the people in a given society. On the other hand, for ensuring support services to the targeted population efficiently and knowing the impact of poverty alleviation programme and policies, information are prerequisites. Identification of some core indicators related to causes and output of poverty needs to be developed for assessing changes over the years in respective areas. Collecting information related to indicators of poverty and, updating the information regularly would facilitate monitoring of changes in indicators over the years, hence, helps in identifying course of action for the development of people. Increasing support on decentralization of government activities also advocates the importance of involving local government and local people for poverty monitoring. A system with this mechanism will create ownership on generated information and value will be added in terms of reducing time, cost and process of existing poverty monitoring. Finally, the governance of decentralized unit of the government and local government will be improved. Under this conceptual framework following mechanism has been evolved under LLPMS.

2. CBMS Design in Bangladesh

The following principles have been adopted in the development of the community based monitoring system, referred as Local Level Poverty Monitoring System (LLPMS) in the context of Bangladesh:

1. Community Participation. General people, specially the disadvantaged population and communities, are usually bypassed in the process of implementation of any development
initiatives although these are designed for changing their fate. As a result, policy prepared for their development sometimes fails to articulate their demands and aspiration, and ultimately it is very difficult to knock the most potential areas of development. While local communities facilitate the conduct of different national level surveys and censuses, often times they have no access to information. In the process of implementing the LLPMS, all sectors of population in the community are informed, consulted and involved in different stages of the LLPMS process.

2. **Involvement of Local Government as Key Actor.** Any collective effort is better than an individual initiative. It is easier to influence a policy planner if the need is identified from a collective initiative. The elected representatives of the people run the local government and are expected to have a better understanding about the local situation and better influencing capacity. These two inherent capacities of local government are used for accelerating the LLPMS process.

3. **Quick Dissemination of Information.** Quick dissemination of information is another principle of LLPMS. Some of the information e.g. total number of households in a village and poverty situation on the basis of their own perception is disseminated within a few hours of conducting the wealth ranking exercise of PRA. Finally, a comprehensive idea about the situation of their development is given within six months of the household survey.

4. **Validation of Information.** The system involves the validation of information through community participation. Every person living in the rural areas has perception about the situation of their own village. Ward Information Book (WIB) prepared using data generated by the LLPMS has incorporated some aggregate information of village level and some information of each household. Validation of LLPMS information is done during the training of functionaries of local government and Ward meeting where the WIB was kept open to check the information generated and to disseminate the information about the different poverty indicators generated about the community.

5. **Create a Sense of Ownership in Gathering Information.** To ensure sustainability of data collection, LLPMS was designed to be owned by its potential stakeholders and its end use is assured. Attempt to generate information will be valued if the information generated is useful for the target stakeholders i.e. planning purpose. Under this context, the process of implementing the LLPMS also involves preparation of local plans, analysis of the information gathered and generated, and prioritization of the sectoral problems identified. More emphasis is laid on the existing support service structure and optimal use of existing resources rather than developing additional institutions or fund for implementing the plan.
The functionaries of local government are tapped, motivated and trained to use the WIB for taking evidence-based decision for delivering support services. Service delivery agencies are also tapped to get commitment for channeling need based support services through local government bodies.

The implementation of LLPMS has four components:

1. **Participatory Poverty and Development Monitoring (PPDM);** The PPDM indicators are designed to see the socio-economic changes with selected indicators. The indicators are selected in consultation with different stakeholders and determined in a participatory manner.

2. **Resource Profile Mechanism (RPM);** RPM identifies the resources and potential usages of these resources. The WDP uses the information generated through PPDM and RPM. For capturing the indicators of PPDM both Participatory Rural Appraisal (PRA) and household survey are conducted. PRA techniques related to social mapping, wealth ranking, problem identification and prioritization, Focused Group Discussion (FGD) and household survey are conducted. For identification of the resources and knowing the existing pattern of their usages resource mapping is done.

3. **Ward Development Planning (WDP);** WDP is prepared by articulating one-year plan on the basis of their existing base and potential resource flow. The status of the Ward and salient feature of the plan is disseminated through organizing meetings at the grassroots level.

4. **Dissemination of Information (DI).** After knowing the situation of the Union and resources, information is disseminated to different stakeholders.

Throughout the different phases of CBMS project in Bangladesh, it was realized that a user friendly, and cost-effective mechanism is needed to be developed for sustaining the system at the grassroots level. Training materials and manual for data collection must also be prepared in native language. The strong demand from the local government for identification of poor households was also validated. The sustainability of the process is challenged, on the other hand, by the change in local officials that are involved in the implementation thus the need for necessary support mechanisms.
2.1. Indicators

2.1.1. Core Poverty Indicators

The set of indicators for monitoring poverty was identified in consultation with influential persons of the villages, the functionaries of Union Parishad and other stakeholders who were oriented about the necessity of the LLPMs and the expected outcome of the process.

Most of the indicators generated by the LLPMS are consistent with the nationally identified poverty monitoring indicators. The data generated to be generated by the LLMPS aim to strengthen national monitoring system by providing the necessary local disaggregation.

The indicators have gone through several refinements following the pilot test and implementation of LLPMS to cover more sites. From the MIMAP indicators developed earlier, Table 2 shows the core indicators refined by the local CBMS research team from BARD in 2004 covering different dimensions of poverty captured in terms of income, health, education, productive assets, household assets, and sanitation, mortality and morbidity, participation in local level institutions, agriculture and environment, labor wages, access to credit, employment and income, access to development organizations and credit, and vulnerability to crisis. Wherever appropriate, the indicators are disaggregated in terms of gender, age, religion and other socio-cultural characteristics.

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
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<tr>
<td><strong>Demographic</strong></td>
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<td>Category</td>
<td>Description</td>
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<td>Education</td>
<td>Percentage of deliveries not by the trained birth attendant or in health center</td>
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<td>Percentage of households involved in renting-out of land</td>
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<td>Average rented-in land (acres)</td>
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<td>Average rented-out land (acres)</td>
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<td>Productive Assets</td>
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<td>Average number of oxen</td>
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<td>Percentage of households having cows</td>
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<td>Average number of cows</td>
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<td>Percentage of households having goats</td>
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<td>Average number of goats</td>
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<td>Percentage of households having duck/poultry</td>
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<td>Average number of duck/poultry</td>
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<td>Household Assets</td>
<td>Percentage of households having houses made of CI sheet or pucca building</td>
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<td>Percentage of households having electricity</td>
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<td>Percentage of households having television</td>
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<td>Percentage of households having mobile telephone</td>
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<td>Percentage of households having cot</td>
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<td>Percentage of households having cupboard</td>
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<td>Employment and Income</td>
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<td><strong>Child labor</strong></td>
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<td>Per household per month</td>
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<td>Wage rate</td>
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<td>**Access to Development</td>
<td>Percentage of HHs involved in development organisations</td>
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<td>Average number of people per HHs involved in development organisations</td>
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<td>Percentage of HHs having taken loan</td>
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<td></td>
<td>Average number of loaners in HHs</td>
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<td><strong>Vulnerability</strong></td>
<td>Nature of crisis</td>
</tr>
<tr>
<td></td>
<td>Crisis coping mechanism</td>
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</tbody>
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### 2.2. Data Collection

In 2004, the implementation of the LLPMS, adopted a paper-based data collection which involved the following steps:

A village map is drawn identifying the boundary of the village by the people of that area. Then the villagers are requested to show the physical resources (roads, culverts, bridges, etc.) and social resources (school, mosques etc.) in the map. Finally, they are requested to show natural resources in the map. The investigators and the supervisors play pivotal role whereas the researchers of BARD facilitate the process.

b) A Community questionnaire is filled up by incorporating the information on number of schools, ponds, health centre, bazar, local shops, poultry farm and nature of land use then they are requested to identify the Baris (cluster of households).

c) Households of each Bari are identified. Each household is given an identification number. Following this, a wealth-ranking card is filled up for each household and every household is identified as non-poor, poor or very poor according to their perception. It is observed that the villagers know the status of the people and they usually identify villagers as rich, middle class, lower middle class, poor and very poor. For simplification of their status, it is expressed as non-poor (the rich, middle class and lower middle class) poor and very poor. However, the lower middle class is at risk as they can slip into poverty at any moment if they fail to cope with the unexpected shock.

d) The household survey is conducted by the local level investigators. For household survey same questionnaire, having different colour is used for data collection. Red cards are
prepared for poor and very poor households, while white cards are prepared for non-poor households. Normally, an investigator can fill up five questionnaires per day but there is flexibility; if the household head is not able to give time on that day, the investigators visit the house another day as per their convenience. The supervisors and the research team check some information on a random basis.

By 2016, the implementation of the LLPMS, while retaining its core design and principles for implementation, adopted the CBMS Accelerated Poverty Profiling (APP) which used a tablet system for data collection.

2.2.1. Data Collection Instruments

Household and individual level data is collected through a household survey. Prior to 2016, LLPMS implements a paper-based approach in the conduct of the survey. Survey form includes a household profile questionnaire and a community profile questionnaire. In 2016, LLPMS adopted the CBMS APP which facilitated the administration of the questionnaires in tablet form. The household profile questionnaire is administered through a household survey while the community profile questionnaire used for collecting common resources and assets is completed through a focus group discussion in each ward. Additionally, a rider questionnaire on youth employment and entrepreneurship was also implemented to collect additional information to examine issues on employment in the context of youth and entrepreneurship in the CBMS sites.

2.2.2. Identification and Training of Local Enumerators and Supervisors

Investigators and supervisors for data collection and data processing are selected at the local level in consultation with the functionaries of the local government. The investigators are trained on the PRS techniques and conduct of the household survey. The training on data collection ran for 2 days which also included practical exercise of data collection.

In 2016, the use of CBMS tablet-based system for data collection was adopted in the LLPMS sites in Bangladesh. The tablet-based system of data collection was then new in Bangladesh and introduction of these techniques needed training. Educated persons of the respective ward from Mohammedpur (West) Union Parishad were trained on the use of the tablet system by the local CBMS research team of BARD. Two members’ team of respective ward with equal participation of male and female were trained to collect data from each household. For capturing information related to existing entrepreneurial environment in the rural areas some Focused Group Discussions (FGDs) were
organized and conducted for young entrepreneurs and local communities.

2.2.3. CBMS Coverage

Under MIMAP-Bangladesh, the Poverty Monitoring System developed and pilot-tested the methodology and the indicators for a Local Level Poverty Monitoring System in 2002. The pilot testing was kept limited in four villages of Sreepur Union of Choudagram Upazila to acquire the required insights prior to its wider replication. With the successful outcomes of the pilot phase, the experimental phase is expanded in a Union named Muhammadpur (West) under Daudkandi Upazila in 2004 covering all villages to examine its effectiveness at the Ward and Union levels. It is expected that an operational LLPMS at the Union level will play a complementary role with the national initiatives of poverty monitoring in providing both poverty and development related information and policy guidelines.

The LLPMS was further implemented thereafter in a Union namely Mohammedpur (west) Union of Daudkandi Upazila, Comilla as part of a CBMS-BARD research study to generate data for examining employment condition of rural youths and quality of entrepreneurial environment in rural areas (Guha and Mamun, 2016). It was implemented by the local CBMS Project Team of BARD in consultation with the Upazila Nirbahi Officer based on some pre-determined criteria i.e. disadvantage in terms of human and income poverty, and remoteness of the area.

2.3. Data Processing

Data processing under the LLPMS was done in two stages. Partial tabulation\(^1\) is done by the supervisors at the local level while tabulation is done by the CBMS researchers of BARD initially using Excel and SPSS, and later using Microsoft Access and SPSS.

Poverty mapping tools such as the CBMS Natural Resource Database (NRDB) -a computer software is used for displaying the information with the digitized map to the policy planner, service delivery agency and for managing database containing the poverty and other related indicators generated from the implementation of the CBMS (in the case of Bangladesh, the LLPMS).

\(^1\) For example, for calculating enrolment rate at the primary level, total number of children 6 to 10 years and number of children of that age group who are enrolled at the primary level are calculated by the supervisor.
Figure 1: Proportion of households with access to electricity, Bangladesh, 2004

Source of basic data: CBMS Census, Bangladesh, 2004

Figure 2: Proportion of households who are poor (using village perception or PRA method), Bangladesh, 2016

Source of basic data: CBMS Census, Bangladesh, 2016
In the LLPMS implementation in 2016, the implementation of the LLPMS utilized the CBMS-QGIS for the generation of poverty maps as shown in Figure 2.

### 2.4. Data Validation

The data of each ward are disseminated in a ward meeting. Elected members of each ward will organize the meeting. Ward Information Books were formulated and shared in the ward meeting for validating the information articulated in the Ward Information Book.

*Capacity Building of the Local Government on the WIB*

For developing capacity of the functionaries of local government in taking database decision, a training is organized to orient them with the WIB. Having duration of three days, training is organized for the functionaries of local government and some villagers. During the training, the trainees are oriented with the functions of local government, project activities of LLPMS, poverty situation of rural Bangladesh and they are motivated to analyze the poverty situation of their respective Wards by analyzing WIB.

A ward meeting was organized at each Ward to disseminate the information articulated at the WIB as well as plan prepared during the training. The meeting is organized under the leadership of functionaries of local government. One of the participants who participated in the training course is assigned to disseminate the aggregate information incorporated in the WIB and salient features of the plan.

A planning workshop is organized at the Upazila level in presence of the officials of different development organizations and functionaries of neighboring Union Parishad. Functionaries of the Union Parishad prepare a partial Union Plan summarizing the Ward plans of different Wards with a view to getting need based support services from the development partners as well as the nation building departments. The Chairman of the Union Parishad presents the plan and some commitments are received from the development partners and nation-building departments as per their demand. Finally, the plan is finalized by incorporating the suggestions of the participants.

### 2.5. Database Management

The LLPMS initially utilized the CBMS Natural Resources Database (NRDB) in its pilot implementation in 2004 for managing the data and dissemination of information.
A database was developed under LLPMS using the CBMS- NRDB, a computer software provided by the CBMS Network. A tri-party memorandum of understanding was later signed among Power and Participation Research Centre (PPRC), CBMS Network, and BARD for developing the database of some poverty-stricken areas in northern Bangladesh. PPRC collected and processed data and BARD provided support for developing the database. Four databases of Kurigram, Gaibandha, Rangpur, and Nilphamamri districts have been developed by using NRDB. The main feature of this database is identification of vulnerable villages and vulnerable households.

With its adoption of the CBMS APP tool in 2016, data generated from the implementation of LLPMS was managed by the CBMS Team of BARD through the CBMS Portal where data transmitted from the field is stored, monitored, and accessed by authorized users.

3. Uses of CBMS/LLPMS Data

Poverty Monitoring and Profiling

Through the data generated from the implementation of CBMS/LLPMS in 2004 and 2016 in selected sites in Mohammadpur (West) union in the Doudkandi Upazila in Bangladesh, a poverty profile and comparative analysis of the progress in poverty situation of the people in the community was generated (Mamun and Guha, 2017). With the CBMS data, the study was able to analyze demographic trends i.e. changes in age structure, household and population and other socioeconomic characteristics of the poor and non-poor including among others their educational profile, patterns in asset ownership, income and employment, incidence of child labor, involvement in development organizations and access to credit, and vulnerability to crisis.

Preparation of Ward Information Books

Using the data gathered from the implementation of the LLPMS, a ward information book (WIB) was prepared for each Ward which includes basic information of each household and aggregate information of some indicators at the ward and village level. The first part of the WIB includes basic information about the villages under Ward i.e. resources of the villages under the Ward, demographic conditions i.e. number of households, number of population, literacy rate, enrollment rate, drop-out rate, access to safe drinking water, use of hygienic latrine, head count index according to the perception of people, food security, different characteristics of household heads, housing condition and electricity use). The second part of the WIB includes information of each 1As for example for
calculating enrolment rate at the primary level, total number of children at 6 to 10 years and number of children of that age group who are enrolled at the primary level are calculated by the supervisor. household on age, profession, educational qualification of household head, number of people, households having drop out children, households having no electricity, households having no tube well, households using unhygienic latrine and landless households.

The Ward Information Book is intended to help local level policy planners in taking evidence-based judicious decision for ensuring the provision of support services to target population in their community.

**Examining Youth Unemployment and Entrepreneurship**

The LLPMS was used to collect and generate data to assess youth employment and entrepreneurship scenario in rural areas taking the case of Muhammedpur West Union in Bangladesh (Guha and Mamun, 2016). Using data from the LLPMS, the study was able to generate and analyze information on the socioeconomic profile of the youth and entrepreneurs in the study area, the concentration of entrepreneurs across wards and quality of entrepreneurial environment (financial, skill formation, institutional, supply chain and infrastructure environment) among others that were used as basis for highlighting priority areas for interventions and program action.

**4. Lessons Learned and Prospects for Institutionalization of CBMS in Bangladesh**

Experience from the implementation of the CBMS has drawn many important lessons. Some of these are highlighted as follows:

1. Community based poverty monitoring system is useful for local level institutions to control over the reducing poverty.

2. Involving relevant nation-building departments in the process of CBMS would facilitate the replication of the system quickly.

3. The development of indicators should consider the need and capacity of the local people. The indicators may vary from one area to another according to the nature of problems.
Identification of core indicators need to be identified in consultation with the functionaries of local government and different stakeholders.

4. The local government unit should be involved in the process of CBMS. For planning purposes, the local government unit having resources can be the focal point.

5. Integration of CBMS-GIS poverty mapping in the LLPMS process is very essential for making advocacy effective. In the case of Bangladesh experience, the output of the CBMS can be made visible to the policy planner by using the CBMS-NRDB which produced GIS poverty maps using CBMS data, which is also a value addition of existing poverty monitoring system.

6. Definition of every indicator needs to be clarified before conducting the survey. Data collection needs to be completed within a specific period of time for using as reference year.

7. For generating employment related information seasonality exercise through PRA may give more reliable information at the grassroots level.

8. Continuation of the system at the grassroots level is a very much challenging task. As the functionaries of the Union Parishad are elected for five years, so there is chance of discontinuation of the system if the new elected body is not acquainted with the process. For that reason, there should be a system of orienting newly elected persons of union parishad on the LLPMS/CBMS process. The support staff of the Union Parishad, the secretary of the Union Parishad and extension workers of the nation building departments posted at union and village level should be involved in the LLPMS process.

9. The CBMS Accelerated Poverty Profiling (APP), which adopts the tablet system for data collection, can be a very effective tool for collecting and analyzing data for selecting beneficiaries of government and other interventions, and for taking evidence-based judicious decision for ensuring support services to the target population.

10. CBMS Accelerated Poverty Profiling (APP) can be used in broad scale by the government and local level functionaries for monitoring and evidence-based beneficiary selections.

11. For institutionalizing CBMS/LLPMS several things are essential. These include providing support for building capacities of the functionaries of Union Parishad and of the local people for data collection and data analysis, fund for data collection, data processing, and political commitments and administrative directives.

Poverty monitoring by involving local people and local government at the grassroots level is a challenging task. There might be academic debate with the capacity of local people and reliability of
information generated through local people. But the experiences from implementing CBMS/LLPMS show that for programming purpose, the initiative is very much well accepted. Nothing is perfect; in every initiative there are some limitations. The main learning from the CBMS project is that the local government unit at the grassroots level can be trained to do the task of poverty monitoring with the help of local people and field functionaries of development organizations if they are provided with support. The quality of information generated would be improved further by practicing the process.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

The CBMS initiative in Indonesia in 2005 attempts to rejuvenate Indonesia’s longest running CBMS - the BKKBN. Initially designed to monitor family planning activities, BKKBN data has been used as the family level targeting tool since the economic crisis as it is the only system that has such information. The pilot CBMS implementation spearheaded by the SMERU Research Institute introduced a new methodology for generating family welfare indicators.

In Indonesia, the government has relatively little problem in conducting regional targeting of the poor. Statistics Indonesia’s relatively reliable Susenas and Podes surveys\(^1\) have been the basis for distributing and allocating programs designed specifically to alleviate poverty in the country. Problems, however, start to arise when local officials at the district level have to actually identify who the poor are and where they are located, because Susenas and Podes do not provide them with this information. In order to gain some sense of where the poor are, the program implementers turned to BKKBN (National Family Planning Coordination Board)\(^2\) data, whose original purpose is to monitor the implementation of the national family planning program, and thus is not suited to undertake the task of identifying poor families. The use of this data has contributed to substantial undercoverage and leakage of government programs aimed at the poor (Suryahadi & Sumarto, “Principles and Approaches”).

For precisely the reason mentioned above, during the 1997 crisis the importance of a proper household targeting mechanism gained recognition. Furthermore, in the light of the decentralization of budgetary power to local governments in 2001 and the new Law on Regional Government\(^3\) that stipulates that governors, regents (district heads) and village heads are now chosen through direct election in their respective areas, government officials are now under enormous pressure to significantly improve their performance.

There have been at least four major efforts carried out by local governments to improve monitoring of the poor and programs related to poverty in the decentralization era: three were conducted in 2001 by the Provinces of Jakarta, East Java and South Kalimantan in cooperation with Statistics Indonesia; and the other is still ongoing in the District of Sikka in East Nusa Tenggara. The cost of

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\(^1\) Susenas is the National Socioeconomic Survey, which collects detailed household and individual level socioeconomic data. The survey covers every district in Indonesia, although it is only representative down to the provincial urban/rural level. Every three years, it also collects detailed household consumption data that is used to calculate poverty lines and national/provincial/district poverty figures. Meanwhile, Podes (Village Potential) is a census of every village in Indonesia (currently about 68,000 villages) that collects information on basic village infrastructure and facilities.

\(^2\) BKKBN is the only agency in Indonesia that annually collects household-level data covering the whole country and spanning 10 years. For more information and history on BKKBN, including weaknesses of using BKKBN as household targeting tool, see Sumarto et al., “Local Monitoring System.”

\(^3\) Law No. 32/2004 that replaced the old decentralization Law No. 22/1999
each of these “census of the poor” is not insignificant. The 2001 poor census cost each province around US$600,000, while the bill for the ongoing census in Sikka is currently US$170,000; an enormous amount of money for a district in the poorest province in Indonesia. The three 2001 censuses have been discontinued, although East Java is planning for a new poverty survey in 2005, while the census in Sikka has a very high probability of failing to produce satisfactory results. All have been plagued with weak methodology and inadequate personnel training.

In the quest to introduce a better monitoring tool in Indonesia, the SMERU Research Institute initiated the pilot test in Indonesia of a poverty monitoring system, called the community-based monitoring system (CBMS), that generates data that are easy to collect, gives objective results, is sensitive to locally specific characteristics, and provides intuitive and speedy results while involving participation of local people from the community. Funding for the pilot initiative from 2005 to 2008 in selected sites in the country is provided by the International Development Research Center (IDRC) Canada through the CBMS Network Coordinating Team which is based at the Angelo King Institute for Economic and Business Studies, De La Salle University, Manila.

The CBMS-Indonesia initiative generally aims to promote the importance of conducting periodic local monitoring activity to local stakeholders. This is in line with the need to understand the regional dimension of poverty and the call for a monitoring system that is conducted and owned by the communities. The Project has demonstrated the reliability of survey results and has provided evidence on how CBMS can foster welfare of the people through better targeting and design of more relevant programs for communities. In 2008, the City Government of Pekalongan has adopted and implemented CBMS as a tool for local planning and for monitoring the millennium development goals (MDGs). Furthermore, CBMS was also used in 2010 by SMERU for the conduct of the PEP supported study on monitoring the impacts of the global financial crisis on poverty.

The expansion of the CBMS initiative in the City of Kota Pekalongan, the first of all the kabupaten/kota in Indonesia to officially implement the system, provided evidence that the system can be adopted by a local government for local planning given appropriate orientation and training in data collection and processing.

1.2. Local Government Structure

In the light of the decentralization of budgetary power to local governments in 2001 and the new Law on Regional Government\(^5\) that stipulates that governors, regents (district heads) and village

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\(^4\) According to a SMERU researcher who visited Sikka, there was much confusion and inefficiency among government officials there

\(^5\) Law No. 32/2004 that replaced the old decentralization Law No. 22/1999.
heads are chosen through direct election in their respective areas, government officials are now under enormous pressure to significantly improve their performance.

In formulating policies and development plans, the government needs accurate and updated data. Regional governments, especially kabupaten (district) or kota (city) governments, have started to play a very strategic role in the implementation of development plans in their territory since the central government enacted the law on regional autonomy. According to the law, regional governments have more weight in running the government administration. They should not just go along with what is instructed by the central government. They have the authority to design a policy plan, draw up their own budget, and implement the policy, especially that related to development, public order, infrastructures, health, education, social problem solving, labor, civil administration, etc. Since the law was upheld, regional governments have achieved considerable progress with regard to public services such as access to education and health facilities. They, however, are still faced with a number of problems, especially those related to planning and budgeting system, such as the process of determining the targets of some programs and projects. Data is a very crucial element—for the regional government specifically and the private parties or other institutions in general—in the planning and budgeting process of a program or project.

1.3. Review of Existing Monitoring Systems

The lack of timely, reliable and appropriate set of data is one of the reasons for poorly coordinated and targeted programs. Data are available on how many poor people are in specific locations but not much information are available on who they are. Efforts to target beneficiaries and monitor social impacts of development projects in Indonesia, including the Millennium Development Goals (MDGs), rely on the national socioeconomic survey (Susenas), BKKBN (National Family Planning Coordinating Board), economic survey (PSE05) or village census (Podes) data. These data are necessary, but they are insufficient for effective targeting as they are neither locally specific nor participatory in the collection process (Sumarto, 2010).

Given the decentralized system in Indonesia, identifying beneficiaries and monitoring MDGs at the local level should involve local governments. Thus, a localized monitoring system and locally tailored indicators are needed. The CBMS can provide for these needs. Several community-based monitoring systems are used in Indonesia during crisis. One of the most widely used is the BKKBN monitoring system.

*BKKBN monitoring system*

Originally created in 1970 in order to monitor the implementation of Indonesia’s national family planning program, the BKKBN then added a special section in 1994 that monitors family welfare in line with the government’s intensified efforts to reduce poverty.
The BKKBN monitoring system is used as a targeting tool for programs that were aimed to mitigate the impact of the economic crisis in Indonesia in 1997 for several reasons. One, in contrast to the annual SUSENAS conducted by the BPS, the BKKBN data cover more households, its data collection is conducted by locals, and it has more specific indicators to determine whether a household is poor or not. Two, BKKBN data actually collect information on each household in contrast to SUSENAS that uses sample households. Unfortunately, there are several weaknesses of the BKKBN data that had been uncovered by studies over the years. Two of the most glaring weaknesses are the: (1) failure of the BKKBN data to capture transitory shocks to income as the indicator is based on relatively fixed asset; and (2) highly subjective non-economic criteria. To analyze this, two comparisons between BKKBN and consumption-based measures of poverty were conducted. The first comparison is at the district level, the result of which shows that BKKBN data to a large extent, agree with district-based poverty headcount. The second comparison is at the household level which, in contrast to the first comparison, shows that there is quite a large discrepancy between BKKBN and consumption-based measure of poverty taken from the SSD. In order to remedy this discrepancy, a new scoring system or composite index that will evaluate the results of the BKKBN survey needs to be explored.

**Monitoring the MDGs**

Achieving the MDGs is not the responsibility of the central government alone. All stakeholders, including the regional governments, should play their role. At the time of the development of the CBMS initiative in Indonesia, a report keeping tracks of the attainment of the goals was only available at the national level, while in fact, it would be more useful to have reports on the progress of the MDGs at the kabupaten and kecamatan level since the problems being faced are more concentrated at the grassroots level. Before the decentralization period, provision of data for the purposes of planning, monitoring, and evaluation may have been of minor importance. Given that the regional governments have the autonomy and thus bigger roles in the development of their own region, on the one hand, they need reliable information and data on the condition of their people so that they can figure out which development programs are appropriate to meet the people’s needs, how they can accelerate the development, which groups need more attention, or which kecamatan/area should get immediate priority. On the other hand, conducting surveys and data collection proves to be very costly and difficult. Although there have been efforts into surveying the indicators of the MDGs as a pilot project in five kabupaten in two provinces—three kabupaten (Bantaeng, Takalar, and Bone) in South Sulawesi Province and the other two kabupaten (Polman and Mamuju) in West Sulawesi Province—in 2007, but most regional governments are somewhat reluctant to do such expensive survey and data collection.
2. Key Features of CBMS in Indonesia

There are several major differences between CBMS and the traditional poverty monitoring system. Firstly, the CBMS uses questionnaires that are simple enough to be conducted by locals and takes into account local knowledge. Village officials and local people are tapped and trained to collect, process and calculate several village-level poverty indicators, such as those related to employment, education, health, and sanitation.

Secondly, since the locals can start analyzing a part of the information without having to wait for it to be processed and analyzed at higher government levels, results is expected to be available in relatively shorter time and can speedily be acted upon.

Thirdly, CBMS is sensitive to locally specific conditions. This is very important because poverty conditions are often locally specific. By being sensitive to local conditions, CBMS can provide guidance for the right policy to reduce poverty in an area. In contrast, other poverty monitoring systems usually use a universal set of poverty indicators for the whole country, which is often proved ineffective due to the complications posed by regional heterogeneity.

Finally, the data collected through the questionnaire can be sent to district level governments that can be used for various purposes, such as budget allocation and program targeting. For instance, as a targeting tool, CBMS data can be applied to statistical techniques such as Principal Components Analysis (PCA), for generation of a composite index to summarize all the multidimensional aspects of poverty into a single figure for every family in a village and help government officials in ranking of families in a village based on their welfare conditions.

Existing indicators used for targeting only classify families into poor and non-poor and there is no detailed breakdown on which families are the poorest among the poor. With family ranking based on welfare that can be generated using CBMS data, information on which family is the poorest or which families are the 10% poorest families in the village can be made available to decision makers. This information is expected to significantly improve targeting of government poverty alleviation programs, reducing leakage and under-coverage. A common grievance of BKKBN data is that it could be easily tampered with. To remedy this, the variables gathered through CBMS record more detailed household characteristics; village leaders and enumerators would not know the weighting/importance of each variable until it is processed; and tampering with data after processing would render the already-processed weightings obsolete, thus making the results invalid. In short, the data and the processing method used in the implementation of CBMS ensure that data-tampering is harder and the result more objective.
Cooperation with BKKBN (Badan Koordinasi Keluarga Berencana Nasional/National Family Planning Coordination Board)

The local CBMS research team of SMERU intended to collaborate with BKKBN from the beginning of the CBMS initiative in 2005 because of several reasons. Firstly, BKKBN is experienced in conducting household-level census. In almost every village in Indonesia, it has cadres at the neighbourhood level who are still collecting BKKBN data annually. Secondly, since BKKBN will continue to collect annual household level data, it is the agency which will benefit the most from the improved CBMS. Thirdly, in the long run SMERU hopes that local government will take charge of the monitoring process, which means a sense of ownership needs to be established from the outset. Furthermore, there is a greater chance that local government will formally adopt the CBMS if SMERU works together with a government agency rather than working alone.

Both the central BKKBN and the district-level BKKBN offices were indeed involved in the pilot, from questionnaire design, recruitment of enumerators, and training the enumerators. Representatives from the national BKKBN, BKKBN Demak, and BKKBN Cianjur also attended and actively participated in the national dissemination workshop.

Steering Committee

To further strengthen linkages with government agencies, SMERU created a steering committee that will receive progress updates at each phase of the project. There are 4 other members of the steering committee in addition to SMERU’s Director. Their involvement in the CBMS initiative is mainly as advisors during the preparation stage, such as providing inputs to the research instruments and methodology. They were also involved again during the dissemination stage.

Consultation Workshop

Consultation workshops were also conducted to solicit views, comments, suggestions and critiques from government agencies and non-governmental organizations on the data collection instruments and on the implementation of the CBMS.
2.2. Adjustment of CBMS Methodology to Indonesia’s Context

2.2.1. Core Poverty Indicators

Table 1 shows the core indicators that were employed as proxy for welfare. The indicators cover the different dimensions of poverty including education, employment, food security, health, asset ownership, and political and security indicators. Indicators also take into account demographic characteristics such as age and sex of household head, marital status and household size as well as availability of facilities in the village including schools, market, health centers etc.

Table 1: CBMS core indicators, Indonesia, 2005

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Age and sex of household head</td>
</tr>
<tr>
<td></td>
<td>Marital status of household head</td>
</tr>
<tr>
<td></td>
<td>Household size</td>
</tr>
<tr>
<td>Education</td>
<td>Education level of household head</td>
</tr>
<tr>
<td></td>
<td>This household has a school-age member who is out of school</td>
</tr>
<tr>
<td>Employment</td>
<td>Number of working-age household members who are working</td>
</tr>
<tr>
<td></td>
<td>Number of school-age household members who are working</td>
</tr>
<tr>
<td></td>
<td>The spouse is working</td>
</tr>
<tr>
<td></td>
<td>Occupation that provides the most income in this household</td>
</tr>
<tr>
<td></td>
<td>This household receives income from outside the household</td>
</tr>
<tr>
<td>Food Security</td>
<td>Number of meals a day</td>
</tr>
<tr>
<td></td>
<td>Staple food usually consumed</td>
</tr>
<tr>
<td></td>
<td>Household members consume meat, chicken, or fish at least once a week</td>
</tr>
<tr>
<td>Health</td>
<td>Type and place of treatment sought during illness</td>
</tr>
<tr>
<td></td>
<td>Main source of drinking water</td>
</tr>
<tr>
<td></td>
<td>Whether drinking water is boiled</td>
</tr>
<tr>
<td></td>
<td>Ownership of toilet facilities and type used</td>
</tr>
<tr>
<td></td>
<td>Use of contraceptives among adult/married household members</td>
</tr>
<tr>
<td>For women respondents and if there is a child &lt;5 years old</td>
<td>Incident of child and/or infant death in the family</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Whether received routine antenatal and/or postnatal care from health officials during pregnancy for child under 5 years old</td>
</tr>
<tr>
<td></td>
<td>Child under 5 years old has been immunized.</td>
</tr>
<tr>
<td></td>
<td>Assistance during delivery for child under 5 years old</td>
</tr>
<tr>
<td>Asset Ownership</td>
<td>Ownership status of house</td>
</tr>
<tr>
<td></td>
<td>House size</td>
</tr>
<tr>
<td></td>
<td>House material and characteristics</td>
</tr>
<tr>
<td></td>
<td>Ownership of durable goods, including productive assets</td>
</tr>
<tr>
<td></td>
<td>Source of light</td>
</tr>
<tr>
<td></td>
<td>Source of cooking fuel</td>
</tr>
<tr>
<td></td>
<td>Number of farm animals</td>
</tr>
<tr>
<td></td>
<td>Whether buy new clothing at least once a year</td>
</tr>
<tr>
<td></td>
<td>Access to formal credit market in the last 3 years</td>
</tr>
<tr>
<td></td>
<td>Savings</td>
</tr>
<tr>
<td>Political and Security</td>
<td>Participation in last political process at national and local level</td>
</tr>
<tr>
<td></td>
<td>Whether has been a victim of crime in last 12 months, type of crime</td>
</tr>
<tr>
<td></td>
<td>Access to information (television, radio, newspaper, internet)</td>
</tr>
<tr>
<td>Village Level Information</td>
<td>Availability of school</td>
</tr>
<tr>
<td></td>
<td>Availability of health center</td>
</tr>
<tr>
<td></td>
<td>Availability of vocational training facility</td>
</tr>
<tr>
<td></td>
<td>Availability of market</td>
</tr>
<tr>
<td></td>
<td>Number of market days in a week</td>
</tr>
<tr>
<td></td>
<td>Availability of police station</td>
</tr>
<tr>
<td></td>
<td>Type of road in village, accessibility during rainy season</td>
</tr>
<tr>
<td></td>
<td>Availability of public transportation</td>
</tr>
<tr>
<td></td>
<td>Main water source in village</td>
</tr>
</tbody>
</table>
2.3. Data Collection

In the implementation of CBMS, data collection is done through a household census to monitor the community welfare and is done with the local people's active participation. The main purpose is to identify poor families in a village thus it is very important that the methodology used is able to do so. The CBMS data collection method uses structured questionnaires for collecting information on households.

2.3.1. Data Collection Instruments

The implementation of CBMS in Indonesia uses two questionnaires: for data collection: household and village. A household questionnaire is used for collecting household data, where both household head and the female member/s of the family would be the respondents for the respective relevant portions. The village questionnaire is used to record available facilities in the villages.

The questionnaires are prepared in Bahasa Indonesia and were not translated into local dialect since every cadre was fluent in Bahasa Indonesia. However, local dialects are used during the interviews.

2.3.2. Identification and Training of Local Enumerators and Supervisors

During the pilot phase in Cianjur, enumerator recruitment was initially arranged by BKKBN district offices. Since BKKBN Cianjur is still fully operational and funded by the district government at that time, it had no problems in identifying cadres in the village near the Cianjur capital and in instructing them to attend the training. For the other village, however, there was only one BKKBN cadre.

In contrast, BKKBN Demak did not have data on cadres in each village. When SMERU researchers visited the villages in Demak in the preliminary survey, they found that its two villages had never had more than two or three cadres. BKKBN data collection has always been mainly conducted by village officials with the help of PPLKB. Although there was no clear reason why this was so. Thus, the task of recruiting enumerators was given to village heads of the two villages, assisted by the PPLKB and PLKB. They assigned mostly village officials as enumerators. In addition, residents with a minimum of nine years of schooling and who were socially active were also recruited to obtain the

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6 PLKB (Family Planning Field Worker) and PPLKB (Family Planning Field Worker’s Supervisor). Usually a PLKB is responsible for one village, while a PPLKB is responsible for all PLKBs in one subdistrict.
required number of enumerators. These requirements were necessary to ensure that the enumerators can fully understand the questionnaire and those recruited were people known by their neighbors.

Each enumerator conducted the census in the hamlet that they reside in or in a neighboring hamlet within the same neighborhood. This policy was implemented to save time and to ensure that the enumerators were already well recognized and trusted by the respondents. Furthermore, this policy also helped to minimize the number of respondents giving false information because it was more likely the enumerator would have known if a respondent gave false responses. Thus, there was at least one enumerator for each hamlet in every village. Recruitment of enumerators in both districts was completed around one week before the start of the training sessions.

Training for enumerators was conducted simultaneously in the pilot villages in Cianjur and Demak. Two SMERU researchers, one BKKBN official from the Jakarta headquarters, and at least one BKKBN official from the district office conducted the training in each village.

The contents of the training included discussion of each question in the household questionnaire, how to approach respondents, the importance of confidentiality, and remuneration for the enumerators. There was also an interview practice session. In this session, enumerators were paired and took turns in conducting a mock interview using the questionnaire. This session was valuable because the enumerators had the chance to structure their questions according to the questionnaire and to answer questions that may arise during the actual data collection. After the training, the local CBMS research team from SMERU remained in the villages for two to three days to check on the completed questionnaires and answer any questions from the enumerators.

In addition to using BKKBN cadres, the PLKB and PPLKB were also tapped to supervise data collection. As already known, these officials are BKKBN officials at the village and subdistrict levels and are the supervisors in the usual BKKBN data collection. Since SMERU is committed to using the BKKBN traditional data collection structure, the PLKB and PPLKB were fully involved. In addition, they were tasked to collect the complete the questionnaires and arranged them into each hamlet.

*Training of Trainers*

During the expansion of CBMS in 2008-2009, a number of trainings were conducted as part of capacity building activities for the local community and government staff members in the CBMS sites. This ensures that knowledge and skills are shared and retained by the local people. Among these training activities, particularly for the implementation of CBMS in Kota Pekalongam, included
training for prospective trainers, training for kecamatan- and kelurahan\(^7\)-level coordinators, and training for enumerators. CBMS introductory training was a capacity building activity for the staff members of the local government and related government agencies. In this training, the CBMS initiatives, including its benefits, methodology, and activities that entail were introduced. The participants were the head of Kota Pekalongan, head of Bappeda and staff, officials of related government agencies (health, education, etc.) and the Kota Pekalongan office of Statistics Indonesia. This training was aimed at increasing the awareness, interest, and understanding of the stakeholders regarding the CBMS.

Training for prospective trainers was also conducted at the Bappeda office. In this training, every census instrument was discussed and modified by the local CBMS research team of SMERU, adding questions to cater to the local conditions in Kota Pekalongan. The participants were staff members of PATTIRO and the University of Pekalongan.

Training for kelurahan-level coordinators were attended by 26 coordinators (4 from kecamatan level and 24 from kelurahan level). The kelurahan-level coordinators were to assist the technical team and SMERU in supervising the process of questionnaire completion, reviewing and collecting the completed questionnaires, and submitting the questionnaires to the kecamatan/kelurahan-level coordinators.

2.3.3. Pilot CBMS Census and Coverage

The pilot project is restricted to the province of Java. Two kabupaten are selected, one where BKKBN is still in place and the other where BKKBN is no longer institutionalized. The first one is Cianjur in West Java and the other is Demak in Central Java.

From each kabupaten we choose two kecamatan, and one village in each kecamatan, making a total of four villages. Every household in the villages is visited. The kecamatan chosen takes into account the distance from the kabupaten capital. One kecamatan is far from the Kabupaten capital whereas the other will be near. The sample is not meant to be representative of the kabupaten or kecamatan.

<table>
<thead>
<tr>
<th>Name of Kabupaten</th>
<th>Cianjur</th>
<th>Demak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Sub-districts/kecamatan</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>Number of Villages</td>
<td>341</td>
<td>247</td>
</tr>
</tbody>
</table>

\(^7\) A kelurahan is a village level administrative area located in an urban center.
The pilot areas where CBMS was implemented include Cianjur (Parakantugu in Kecamatan Cijati and Cibulakan in Kecamatan Cugenang) and Demak (Jungpasir in Kecamatan Wedung and Kedondong in Kecamatan Demak). CBMS implementation was also extended later in Kota Pekalongan.

Kedondong is situated 10 kilometers from the capital of Demak, consisting of three neighborhoods, with a total of 20 hamlets (sub-neighborhoods). The village is arranged in blocks. Each block is the same as one hamlet and is made up of around 60 houses.

Jungpasir is one of 20 villages in the subdistrict of Wedung, in the district of Demak. The village is divided into five neighborhoods, with a total of 11 hamlets, and lies on the border of Demak and Jepara, a district east of Demak. It is located 25 kilometers from the district capital, and around 15 kilometers from the subdistrict capital. It is located far from the state road (roads built by the central government) that connects Demak to Jepara.

Cibulakan is one of 16 villages in Cugenang subdistrict in Cianjur. The village is separated into three main residential blocks, in total comprising of six neighborhoods and 22 hamlets. The first five neighborhoods are located on the side of the village road, while the sixth neighborhood is located about two kilometers from the village road, surrounded by paddy fields. The village is about six kilometers away from the capital of Cianjur and four kilometers from the capital of Cugenang.

Prior to 2005, Parakantugu was a part of Kadupandak Subdistrict. In January 2005, there was a segregation of the subdistrict into two sub districts, Kadupandak and Cijati, and Parakantugu was included as a part of the new subdistrict. Parakantugu is located along Cibuni River, which regularly floods the village during the rainy season. The village is about 90 kilometers from Cianjur capital and five kilometers from Cijati capital.

Kota Pekalongan is located 384 kilometers from Jakarta (the capital province of Indonesia) and 101 km from Kota Semarang (the capital city of Central Java Province); it is administratively divided into four kecamatan (sub districts), namely Kecamatan Pekalongan Selatan, Kecamatan Pekalongan Timur, Kecamatan Pekalongan Utara, and Kecamatan Pekalongan Barat.
2.4. Data Processing

During the first round of CBMS implementation, local CBMS researchers from SMERU collected the questionnaires and processed and analysed the data to generate welfare scores of every family in the CBMS sites.

In the succeeding round of CBMS implementation in 2008-2009, the CBMS team of SMERU Research Institute trained focal persons from Kota Pekalongan on the processing of CBMS data using CSPro. Poverty maps were also generated in order to help local authorities, other policy makers, and members of the community to visualize the results better (See sample poverty maps in Figures 1 and 2).

**Figure 1: Proportion of households who drink water from the river, Kota Pekalongan, 2008-2009**

Source of basic data: CBMS Census, Kota Pekalongan, 2008-2009
Figure 2: Location of households with poor drinking water source, Kota Pekalongan, 2008-2009

Source of basic data: CBMS Census, Kota Pekalongan, 2008-2009

Figure 3 shows the coordination channels among the institutions and their roles during the CBMS implementation, from the development of questionnaires to the training for and supervision of enumerators as well as the data cleaning process.

Figure 3: Coordination channels in CBMS implementation
2.5. Data Validation

To verify whether the CBMS results are accurate in predicting welfare in the villages, verification activities are undertaken. This entailed conduct of FGD sessions. The results show that the methodology is quite accurate in terms of predicting the welfare status of the village residents.

CBMS results, especially the family rank, were verified in discussions with local residents (for example, in the case of the pilot test, in two villages: Cibulakan in Cianjur and Kedondong in Demak). The verification was conducted using a Focused Group Discussion (FGD). There were around 11 to 16 participants in each FGD session. There were 3 FGDs in each village: a village-level FGD and two hamlet-level FGDs. In the village level FGD, village elders, officials, teachers, and those thought to be knowledgeable of the condition in the village were invited as participants. The topics discussed were welfare classification of village residents, important welfare indicators, and poverty rates in the village and neighborhoods.

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The hamlets were chosen based on these criteria: distance to village center, usually the village office, where one was far and the other was near; heterogeneity of residents in the hamlets in terms of diverse occupations and conditions; and number of residents in the hamlets, where one had less than 100 families and the other with more than 100 families. Only residents in the chosen hamlets were invited to the FGD. The topics discussed were the same as in the village-level FGD, but in addition the participants were asked to list every family in the hamlet and classify each one based on the previously agreed classification. Furthermore, in the hamlets with less than 100 families, the participants were asked to rank families based on the agreed welfare indicators. The results were then directly compared with the PCA results.

2.6. Database Management

For the first round (2005) of CBMS pilot, SMERU stored the results of the pilot study in a CD and in a written research report which served as a guidebook. In the initial plan, the guidebook would have exactly the same content with the CD, but would be sent to districts that do not have any computers. However, SMERU found that virtually every district office in the country has a computer. Therefore, the CD and guidebook were redesigned to complement rather than substitute each other.

The CD contains the rationale for conducting the CBMS pilot, a short description of PCA, the family questionnaire, and the visual results of the CBMS. Meanwhile, the guidebook, which is now called the research report, contains the steps taken during the pilot, from recruitment of enumerators to data processing, and also the detailed PCA results and the qualitative and quantitative profile of each village.
For the succeeding CBMS round/s (2008, 2009) the household data were recorded using CSPro and the data output was in STATA format. There was a shortage of computers compared with the number of data entry people in 2009. As the data entry system was not in a web-based format and the number of computer was not sufficient, one computer was shared by two data entry people who had to use it in turns.

3. Uses of CBMS

CBMS is designed to be used at the local level and for targeting purposes. So when the national government wants to allocate programs to a certain region, they can use the national survey, which is representative down to kabupaten/kota level and then let the local officials decide the allocation to each village using CBMS. Some of the specific uses of CBMS are discussed in this section.

**Poverty Analysis**

The implementation of CBMS generates the needed data for poverty profiling and analysis at the kecamatan level (See Suryadarma, Akhmadi, and Yusrina 2006; Akhmadi, Yusrina, and Yumna, 2010). Using data generated from the implementation of CBMS in Kecamatan Pekalongan Timur and Kecamatan Pekalongan Selatan covering 111,008 residents from 28,189 families across both kecamatan (which included are 13 kelurahan in Kecamatan Pekalongan Timur and 11 kelurahan in Kecamatan Pekalongan Selatan), Akhmadi, Yusrina, and Yumna (2010) was able to show that CBMS data can accurately identify welfare ranking of families.

**Monitoring the MDGs**

CBMS data can also be used for localizing global development commitments such as the millennium development goals (See for example Akhmadi, Yusrina and Yumna, 2011). In 2008, the City Government of Pekalongan has adopted and implemented CBMS as a tool for local planning and for monitoring the millennium development goals (MDGs).

**Vulnerability Risk Mapping and Climate Change**

CBMS data can be used for climate change vulnerability assessment and mapping (See Akhmadi, Rahmita, and Wahyu, 2012). Using data generated from the implementation of CBMS in Kota Pekalongan and other available data, Akhmadi, Rahmita and Wahyu (2012) were able to determine which groups are most vulnerable to climate change, the current level of impact, and potential strategies to mitigate the impact. For example, CBMS data from the Kota Pekalongan indicates that more than a quarter of households in Kota Pekalongan are vulnerable to floods, with Pekalongan...
Utara being the most vulnerable kecamatan. Data from CBMS also served as inputs for the calculation of a local climate change vulnerability index (in this case of Pekalongan) and vulnerability maps showing risks in terms of exposure, sensitivity and adaptive capacity in the area.

Figure 4: Climate Change Vulnerability Map of Kota Pekalongan, 2012

Impact Monitoring

According to Sumarto (2010) CBMS be employed to improve the targeting of beneficiaries and the monitoring of shocks. The CBMS can be used to identify local-specific conditions. At the same time, it is also difficult to tamper with it since the criteria are generated by the data themselves and are not known prior to the data collection. Moreover, it can also provide the results of the welfare level rank of every family in a location.

Using CBMS data from Kota Pekalongan, for instance, local researchers from SMERU analyzed the transmission channels of the impact of the global financial crisis on households (See Akhmadi, Yusrina, Yumna and Rahmita, 2011). The study was able to examine the impact of the crisis on (i) factories and home industries; (ii) changes in employment, incomes, and consumption; and (iii) the children’s education in the CBMS sites. In particular, CBMS data points out that from the 13,609 households in the study site, there were 389 households whose members have had to change professions or even lose their jobs, resulting in the drop of income; hence decreasing quality and
quantity of food intake, change in healthcare patterns, and their children dropping out of primary or junior high schools.

Fostering Women Empowerment

In 2011, the National Secretariat of PEKKA (Women-Headed Household Empowerment) with technical support from the SMERU Research Institute, has adopted CBMS in selected areas in 18 provinces in the country. PEKKA is a program in Indonesia that generally aims to strengthen capacities of women-headed households to contribute to the process of realizing a society that is prosperous, democratic, gender-fair and respected[i]. In particular, it aims to improve women-headed household welfare, organize and facilitate access of women household heads to various resources, facilitate active participation of women-headed household to every phase of development, raise awareness among women household heads on their rights as human beings and as a citizen who is equal to others, and empower women-headed households to have control of their lives and in the decision making process within their families as well as within the society.

4. Strategies for Institutionalization of CBMS in Indonesia

Drawing from the field implementation of CBMS in the pilot sites, it was found that while government officials play a key role in the CBMS process, the importance for collaboration with non-governmental organizations is also recognized. This implies that local NGOs could play a role in terms of supervising data collection and assisting data entry. A possible larger role for them, however, would be in conducting the validation activities and in giving recommendations to the district government.

It was also learned that the CBMS questionnaires developed only required minor adjustments to ensure its relevance in measuring local poverty conditions, while keeping the core questions—such as health and education conditions—intact. This may imply consideration of having different questionnaires based on the characteristics of the area where CBMS is to be implemented. As an example, a fishing village may need different questions in the asset ownership section compared to farming villages. Similarly, urban villages may require additional questions regarding migration.

Regarding the methodology for processing and analyzing the data, SMERU believes that district government officials have the capacity to conduct the PCA and analyze the results. In addition, most districts in Indonesia have the ability to acquire the required equipment for the CBMS activities. Meanwhile, the verification activity may need to be extended further to accommodate the opinions of the residents in terms of which services should be prioritized in their area. This would be beneficial for the local governments in planning for future development agenda.
With a system like CBMS that is able to accurately identify poor families already been designed and proven its feasibility to be implemented by a local government, the next important step for adoption by district governments would be to intensively promote CBMS to district governments throughout Indonesia. This could be in the form of workshops in the region, contacting potential district governments, or conduct of CBMS training sessions. In addition to promoting CBMS to the local governments, it may also be beneficial to promote it to central government agencies, such as the Department of Home Affairs or the National Development Agency.

Several district government officials have expressed interest in trying out CBMS in their localities, but all of them did not express willingness in financing a part or all of the activities. This is mainly due to the budget design of local governments, which does not allow for changes in budget items in the middle of budget year. Therefore, this issue has to be solved before any CBMS activity could be undertaken in the future. It is possible to have the central government or donor agencies finance for some of the expenses.
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1. Context and Rationale for the Implementation of CBMS

1.1. Background

The Community-Based Poverty Monitoring System (CBPMS) was pilot-tested in Cambodia in 2004 by the Cambodia Development Resource Institute (CDRI) in close collaboration with the National Institute of Statistics and the Seila programme. The implementation of CBMS in the country was initiated under the context of poverty reduction initiative in the country.

Having emerged from two decades of civil war, Cambodia was then noted as one of the poorest countries in Southeast Asia. In 1999, the figure stood at 36 percent, reflecting a reduction of only 3 percent over a period of 6 years (RGC, 2001). A national poverty rate had not been estimated since 1999. Alleviating poverty, and at the same time maintaining peace and stability in the post-conflict nation was the fundamental development challenge faced by the Royal Government of Cambodia (RGC). In this connection, a National Poverty Reduction Strategy (NPRS) had been drawn up.

The NPRS draws on documents concerned with poverty reduction, including the Interim Poverty Reduction Strategy Paper (I-PRSP) and the SEDP II. However, the NPRS goes beyond both documents in seeking more practical and action-oriented approaches to reducing poverty. Nationally representative poverty data used for these papers are based on the Cambodia socio-economic surveys conducted in 1993/94, 1996, 1997, and 1999, and on the Participatory Poverty Assessment in 2001.

Decentralization and Deconcentration (D&D) reforms were launched by the RGC in 2001 with the enactment of the Law on Commune/Sangkat Administration and Management and the Law on Commune/ Sangkat Elections. In February 2002 and again in April 2007 elections of Commune/Sangkat councils were held in Cambodia’s 1,621 communes and Sangkats.

In June 2005 to 2008 the RGC has been working on an “Organic Law on Decentralization and Deconcentration” entitled “Law on Administration and Management of the Capital, Provinces, Municipalities, Districts and Khans”. It was promulgated in May 2008 after approval by the National Assembly and the Senate. After the election of Provincial/Municipal and Districts/Khan Councillors on 17 March, 2009, the councillors have important roles in making the development planning. In practice main features of the D&D reform will be the following: a) the revision and strengthening of horizontal and vertical institutional relations at all levels of administration. b) the elaboration of development plans and investment programs and c) the monitoring of progress.

The unavailability of district data makes it hard for councillors to implement development planning, CBMS is seen to have a crucial role in pushing development plans ahead and ensure the success of the D&D reform by providing the needed data and building capacities of communes and districts in data collection, processing and analysis of data.
After the initial pilot test of CBMS in 2004-2005, the National Institute of Statistics under the Ministry of Planning has taken over the management of the CBMS initiative to gradually expand the coverage. There were two parts of the NIS initiative. The first part is to replicate the implementation of the CBMS in the same communes to show that the communes have the local capacity to repeat the exercise with minimal technical support from the provincial and district offices. The second part is to expand the coverage to cover one full district in one of the poorest provinces. In 2010, all five communes in Snuol district, Kratie province were covered. The CBMS initiative was also able to demonstrate the use of CBMS data for monitoring impacts of a crisis i.e. hike in commodity prices and global financial crisis on poverty.

The Community-Based Poverty Monitoring System (CBMS) was successfully pilot-tested in Cambodia in 2003-2005 by the Cambodia Development Resource Institute (CDRI) in close collaboration with the National Institute of Statistics and the Seila programme. It provided valuable results, which satisfactorily describes the different facets of poverty in 6 communes of two different provinces. The pilot project has successfully promoted links between the communes; provincial and national level planning processes through the use of CBMS data. The project has developed the capacity of local authorities to implement the CBMS in their localities. To meet the long-term objective of creating a sustainable system to locally monitor poverty reduction over time, the project has placed emphasis on institution and capacity building at the local level and leadership by the National Institute of Statistics (NIS) under the Ministry of Planning (MOP). The second phase of the CBMS initiative thereafter focused on institution and capacity building at the local level to meet the long-term objective of creating a sustainable system to locally monitor poverty reduction over time. Knowledgeable villagers in Village Development Committee (VDC) were recruited and trained to undertake the data collection and to process data manually under the management of the commune councils and with technical supervision of the local CBMS research team at the NIS.

As part of the successful advocacy for the CBMS, the NIS used CBMS as a model to create statistical activities up to the commune level to help a new research program on developing statistics for local development planning on local governance and decentralization- an effort to discuss various approaches for identification of poor households under the umbrella of its poverty reduction strategy (Try, Kim, and Nou, 2007)

The CBMS implementation in selected sites in Cambodia was also able to illustrate how CBMS can be used to generate commune level statistics on the different facets of and produce a poverty statistics book that can be used by communes for planning and monitoring purposes. The CBMS initiative has promoted the link between the commune, district, provincial and national level planning processes through the use of CBMS data. Moreover, the CBMS initiative in Cambodia also showed how data (including panel data) generated from implementing CBMS can be used for
monitoring impacts of economic shocks i.e. rise in commodity prices and of the global financial crisis and understand coping strategies that poor households use in response to a crisis.

1.2. Local Government Structure

Cambodia is committed to undergo a long process of decentralization (Nou, Sophal, and Kim, 2005). As part of this, a local election in the Cambodian history was conducted in February 2002 to elect "commune councils" charged with local development planning and implementation. The importance of local governance is well recognized by all of Cambodia's stakeholders and many are working to contribute to enhancing the success of this reform process. Naturally, commune councils need adequate systematic and reliable information in order to conduct their needs assessments, planning, monitoring and evaluation of development projects. On the other hand, unavailability of district data makes it difficult for councilors to implement development planning. The adoption of a CBMS takes a crucial role for pushing their plan ahead and ensuring the success of D&D reform.

Meanwhile, the NIS has received a mandate from the Statistical Law to expand its statistical activities down to the commune level. At that time, the NIS is proposing a new research programme on developing statistics for local development planning on local governance and decentralization, a five-year commitment strongly supported by the Cambodian Government and major donors.

A CBMS has nicely complemented such decentralization efforts in a concrete way and contribute to successful functioning of the new decentralized state apparatus. Cambodia lacks a community-based monitoring system, although there is a commune database, collected through administrative reports under the Seila/PLG Programme and now known as the National Committee for Sub-National Democracy Development (NCDD). Naturally, commune councils need adequate information, generated in a systematic and reliable way in order to effectively conduct their needs assessments, planning, monitoring and evaluation of development projects. The best way to achieve this is to establish a national system and have it operated in a consistent manner by the commune councils, with technical support from the district and provincial statistics offices and other agencies.

Clearly, when local capacity is built to take over the CBMS, it will be much more cost effective than sending enumerators from the capital city as in the past national and community-based surveys. Ensuring local involvement and responsibility in the survey will contribute to local ownership and ensure local use of data. The national surveys generate data only for analysis at the national level and provide no database for the local authorities. In fact, a large number of communes are statistically left out in the national sample surveys.
In Cambodia, a "commune" is the lowest administrative unit. It comprises a few villages and has an average population of about 1,000 households, with sizeable variations. A commune is managed by a "commune council" whose members were elected in February 2002 for the first time in Cambodian history. Commune council members, which number 5 to 11 depending on the size of the population in the commune, come from various political parties and have an office term of five years. The commune councils produce a three-year moving development plan and manage development works in the communes. Normally five to ten communes form a district.

1.3. Review of Existing Monitoring Systems

At the time that CBMS was being developed and pilot tested in Cambodia, some of the existing monitoring systems were documented and reviewed to identify gaps that can be filled in by CBMS.

*At the National Level: "Poverty Monitoring and Analysis Technical Unit" (PMATU)*

As part of poverty reduction efforts, in 2000, the Royal Cambodian Government established the Council for Social Development (CSD), a high level inter-ministerial body with the mandate to promote, coordinate and monitor development policies and programs aimed at poverty reduction. The General Secretariat of the Council for Social Development oversees the Poverty Monitoring and Analysis Technical Unit (PMATU), established in January 2002 under the sponsorship of SIDA and UNDP (GSCSD/PMATU, 2002). The Cambodia Development Resource Institute initially provided technical assistance to PMATU to develop a national poverty monitoring system.

As the research arm of CSD, PMATU has a mandate to (1) coordinate data collection by other national institutions e.g. the National Institute of Statistics, and the statistics units of line ministries; (2) coordinate other data collection activities (e.g. qualitative studies, impact assessment studies, specific case studies) and strengthen national capacity in data collection and analysis; (3) support, and in some cases conduct (along with academic and private researchers) data analysis requested by decision makers; (4) provide overall capacity-building support in poverty-related monitoring and evaluation (GSCSD/PMATU, 2002). Given limited resources, the PMATU concentrated its efforts on building capacity for poverty monitoring and analysis at the central and ministerial levels.

The national household socioeconomic survey, conducted between October 2003 and December 2004, will for the first time employ a diary approach to collecting consumption, expenditure and income data. This was expected generate massive data set for analysis. The National Socio-Economic survey employs a three-stage sampling to achieve national representation. Disaggregation of data to the commune, district or provincial level is not statistically possible. Thus,
the survey provides no useful data for commune purposes. Thus, other agencies are focusing their effect at the local level. PMATU has ceased all activities and was in the process of being redesigned.

At the Local Level: "The Seila Programme/Partnership for Local Governance"

The Cambodian government and donors have made a concerted effort to establish and implement a decentralized programme called "Partnership for Local Governance" or PLG, which aims to reduce poverty through decentralized and improved local governance. The Seila programme, the predecessor of PLG, started in five provinces in 1996 and expanded gradually to presently cover 24 provinces and municipalities in the whole of Cambodia. The RGC has formally adopted the PLG programme as an "aid mobilization and coordination framework for support to decentralization and deconcentration reforms" (RGC, 2003). PLG supports the programming of financial and technical resources at the commune, provincial and national levels to implement and develop the government’s reform agenda to achieve an overarching goal of poverty alleviation (RGC, 2003). The RGC (2003) has stated that "the PLG’s goal is to contribute to poverty alleviation through good governance and its development objective is to institute decentralization and deconcentration systems and strategies to manage sustainable local development".

Largely for planning purposes, the PLG programme employs a system to establish a "Commune Database" (CDB), regarded as "project database" (MoP, 2002). The CDB will have been applied in the all the villages in Cambodia by 2003. It is planned to be updated annually between December and March. The data gathering tool is called the "Village Data Book", which consists of 51 questions for village level data and 10 questions for commune level data (This book was written in Khmer). Such questions mainly concern the numbers of households by age groups, children attending schools, types of shelter, number of transport, farm tools and machinery, and availability of basic infrastructure. The database does not touch household income, livelihood, food security and nutrition aspects.

The village chief is in charge of collecting data and completing the booklet and is expected to seek assistance from village development workers if any. The data recorded are then verified by the commune clerk, who is to produce the commune level data. The data are discussed and verified by commune council members in meeting with all village chiefs. The data are then sent to District Planning Officers, who forward them to the Provincial Department of Planning, where they are processed by computer. Processed data are then sent to the Ministry of Planning for analysis and dissemination. The Ministry of Planning has agreed to develop the CDB into the National Information System and oversee the technical aspects of this database system.

The NIS, under the Ministry of Planning, is the principal agency of the Royal Government of Cambodia (RGC) responsible for collection, compilation, analysis, publication, and dissemination of
the statistical data and information relating to the socio-economic condition of the people in private and government establishments and enterprises, including demographic statistics, national accounts, consumer price indices and other related services within the country. The NIS is also mandated to take charge of maintaining, updating and implementing of the statistical program for the Cambodian Government and other statistical data users. The responsibility of coordinating with other government statistical agencies and development partners is also a function of the institution.

The National Institute of Statistics (NIS) has provided technical support to the local authorities downward to the commune level. Article 9 of the Statistics Law which was promulgated in May 2005, indicates that the NIS has its statistical structure downward to communes. The NIS recognizes the CBMS as a tool for strengthening local statistical system. The NIS has organized the CBMS technical working group for establishing CBMS partnership, resource mobilization and technical provision to communes where CBMS was adopted. The technical working group has its members from the Provincial Department of Planning and District Office of Planning.

2. Key Features of CBMS in Cambodia

The Community-Based Monitoring System (CBMS) in Cambodia generally aims to provide practically generated data to commune councils for their planning, monitoring and evaluation of development projects. To meet the long-term objective of creating a sustainable system to locally monitor poverty reduction over time, the CBMS initiative puts emphasis on institution and capacity building at the local level particularly in data collection, processing and data analysis.

2.1. Adjustment of CBMS Methodology to Cambodia’s Context

2.1.1. Core Poverty Indicators

An initial set of core indicators was developed by the CDRI for the pilot project in 2004 through consultations with partners and review of related literature. The indicators covered demography, education, housing, land, water, health, household expenditure, occupation and income, assets, livestock, and domestic violence. A number of variables duplicate those already contained in the Seila Programme’s Village Data Book.

The set of CBMS core indicators was further refined by the CBMS Team of the NIS over the years of its implementation in the CBMS sites since 2006 to 2010 to capture the multiple dimensions of poverty. The indicators define the basic criteria corresponding to the minimum of basic needs for
life, covering: 1) demography and health, 2) housing, 3) water and sanitation, 4) education, 5) employment, 6) poverty, 7) social disorder, and 8) disaster.

The latest core set of indicators are shown in Table 1.

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demography and Health</td>
<td>Proportion of children 0-5 years old who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy-related causes</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons who got sick of Malaria disease</td>
</tr>
<tr>
<td>Housing</td>
<td>Proportion of households living under makeshift roof of dwelling</td>
</tr>
<tr>
<td></td>
<td>Proportion of households living under makeshift wall of dwelling</td>
</tr>
<tr>
<td></td>
<td>Proportion of household using own dwelling</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households without access to safe water supply</td>
</tr>
<tr>
<td></td>
<td>Proportion of households without access to sanitary toilet facilities</td>
</tr>
<tr>
<td>Education</td>
<td>Illiteracy rate</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 6-11 who are not attending primary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 12-14 who are not attending lower secondary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 6-14 who are not attending school</td>
</tr>
<tr>
<td></td>
<td>Ratio of girls to boys (6-14 years old) are attending school</td>
</tr>
<tr>
<td>Employment</td>
<td>Unemployed persons aged 15 years old and over</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 5-17 years old who are working</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Poverty</strong></td>
<td>Proportion of households living with expenditure below total national poverty threshold</td>
</tr>
<tr>
<td></td>
<td>Proportion of households living with expenditure below national food poverty threshold</td>
</tr>
<tr>
<td><strong>Social Disorder</strong></td>
<td>Proportion of households with members who are victims of crime</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with members who experienced domestic violence</td>
</tr>
<tr>
<td><strong>Disaster</strong></td>
<td>Proportion of households who experienced huge disaster</td>
</tr>
</tbody>
</table>

In the CBMS implementation conducted in 2010, the questionnaire was improved to take into consideration the identified indicators (while also focusing on localizing the Millennium Development Goals (MDGs)).

### 2.2. Data Collection

#### 2.2.1. Data Collection Instruments

The questionnaires developed by CDRI from the pilot phase was refined by the NIS to include items such as marital status, age, sex, literacy level, education, access to school, access to health care, reasons drop out school of children, occupation, child labor, the question on disabilities and fertility and death. To update the instruments, consultations with commune councils were made by the local CBMS research team. The revised the questionnaires were pre-tested prior to implementation in the survey sites.

Four instruments are adopted for the CBMS data collection to generate the indicators from the household, the village up to the commune level.

1. **Form A: Household Listing Form** - used to record preliminary information of each household and at the same time mapping of each household in the village. This tool is used in conducting household interview(s)
2. **Form B: Household Questionnaire** - is the tool used to collect data from the household. This questionnaire when summarized will contain the most important data needed for CBMS report.
3. **Form C: CBMS Village Questionnaire** - is used to collect information at the village level i.e. health services, agricultural land and chemical fertilizer utilities, village infrastructure and...
social disorder and domestic violence

(4) Form D: Commune Questionnaire which consists of indicators on school information, health services, agricultural land and rice yield, infrastructure and external assistance at local level

Other Forms: Controlling forms for supervisors and enumerators, Report of Supervision, Age Conversion Sticker Label rare also used. Posted Stickers to identify building and household will also be used in this phase (please see attached).

The household questionnaire is used to list members in the household. Basic information on the characteristics of each person includes sex, age, relationship to the head of the household, education and disabilities, etc. The form collects data on the following information among others:

- Demography
- Education
- Occupation
- Disabilities
- Health
- Fertility information
- Housing condition
- Energy (source of light, fuel, etc)
- Source of drinking water and sanitation
- Household expenditures
- Household Income
- About crises or household disadvantages
- Household property
- Feeding animal
- Agricultural land
- Violence, and Security and Order
- Mortality
Other materials used during field operations include:

- House stickers and daily report forms (for enumerators)
- Control form (for supervisor)
- Summation sheet of daily Supervision (for commune councilor)

### 2.2.2. Identification and Training of Enumerators

All interviewers should come from the villages (commune in some cases) where the household census will be conducted. Enumerators should have at least some previous experience in conduct of interviews and have good computation skills. A better way to select candidates would have been to post a public announcement at the school or in other communal places.

Experience of the NIS in the CBMS implementation showed that school teachers, who were also employed to conduct the population census and general election administration in Cambodia, can be tapped as CBMS survey enumerators. Since the CBMS survey would take around one month of full time work, the timing to hire school teachers is good for this CBMS survey if it coincides with the school year break.

Members of the Village Development Committee, who have become part of the voluntary Commune Planning and Budgeting Committee, have been recruited jointly by the commune councils and the Supervisory Team. They were later trained to become enumerators. Those with a good command of quantitative skills will also be trained to be data processors.

The village chief was not considered for any substantial role in the survey. The village chief has a lot to offer and could play a helpful role without acting as interviewer/enumerator. As in the pilot phase, the village chiefs assisted the enumerators with geographical guidance, mapping and arrangement of appointments with the households. The commune councilors act as supervisors, field editors and do manual data processing and analysis.

Training on data collection was conducted for three (3) days and one extra day for pre-testing. The first day dealt with the purpose of the CBPMS and all the questions in the questionnaire. The second day was spent on testing the questionnaire in the village. Each enumerator had to interview two households, one small and one large, to gain experience with households of different sizes.

The third day was spent to collect feedback from the enumerators and clarify/rectify any question that was unclear or not applicable. During the third day of the training, the participants were requested to interview each other using the household questionnaire. The respondent act as a head
of household and was made to answer all the questions as read by the interviewer and then they changed their roles such that the interviewers became respondents. The exercises using the questionnaires were collected and corrected by the lecturers. Feedbacks were collected after each exercise and were discussed during the lecture time. These exercises were done in all of the training sessions for data collection.

During the third day of the training, the participants were requested to interview each other using the household questionnaire. The respondent acted as a head of household and was made to answer all the questions as read by the interviewer and then they changed their roles such that the interviewers became respondents. The exercises using the questionnaires were collected and corrected by the lecturers (supervisory members). Feedbacks were collected after each exercise and were discussed during the lecture time. These exercises were done in all of the training sessions for data collection. Participants were provided the floor to raise ideas and comments. Past experiences especially those found in the 2004 pilot project were also discussed.

Pre-testing of the system instruments was adopted as part of the local training. The trainees spent one day for pre-testing. Each enumerator was requested to interview at least two households, one small and one large, to experience different sizes of households. The pre-testing was aimed to get feedback from the enumerators and possibly rectify any unclear questions or omit questions that are not applicable. During the pre-testing, supervisors and supervisory members visited and observed every enumerator while interviewing the household.

After each session of data collection training, a pre-testing training was conducted to test the trainees on the following capabilities: 1) absorption, 2) strength capacity of field supervisors, 3) ability to encode for enumerators and 4) accuracy in checking for local supervisors. After each pre-testing session, feedbacks were discussed, adjustments and recommendations were made.

The pre-testing of the questionnaire was to the advantage of the actual census. The questionnaire became error-free and more accurate. The enumerators and supervisors became well versed in interviewing, encoding and checking for errors. Problems and constraints encountered during the pre-testing were easily solved since it was discussed in the presence of advisory team.

In the Stung district which is composed of 13 communes, the training was done effectively by having three communes in each session for easy group handling, instead of training the huge group all in one time. A session consisted of 75 participants on the average. Training was conducted by the local CBMS research team at the classrooms of primary or secondary schools in the area. At least 122 persons were trained from the communes of Prek Norint, Prek Luong and Samraong Knong in Battambang province, and in Kratie province for the communes of Sre Char, Snuol and Khsem. In
Snuol district, there were about 127 trainees; 15 commune councilors of 5 communes, 45 village chiefs, and 67 enumerators received training of data collection methods, supervision, and guidance.

### 2.2.3. CBMS Census Area/Coverage

#### First Round

Six communes with about 12,000 households in two provinces were selected for the pilot CBMS sites. Three communes (Prek Norint, Samrong Khnong, and Prek Luong) were chosen from Ek Phnom district of Battambang province to represent a better off province; and three others (Snuol, Khsem, and Sre Char) were from Snuol district of Kratie province to represent a relatively poor province. Battambang is one of the provinces that have received relatively more financial supports and capacity buildings from external sources in the past 10 years. Kratie is one of the more remote and poorer provinces. Such differences would provide insights on how the CBMPS could be conducted in areas with poor and better off socio-economic conditions. As expected, the communes in Battambang did the job more smoothly than those in Kratie. It was easier to hire enumerators with a reasonable capacity in Battambang, while it was hard to find enumerators with adequate literacy and willingness to take up the job. The communes in Kratie are dispersed and poorly connected by roads. So it cost more for the enumerators to travel to the villages and households. There were more errors in completed questionnaires in Kratie than in Battambang.

In each related commune, a census of all the households was carried out. In line with the current decentralization efforts directed at the commune level, the selected communes were good target study areas. The pilot CBMS in Cambodia was not intended to represent all the districts or provinces.

Data/information was collected through two instruments: the household questionnaire, and village and commune questionnaire. A total of eighty-four enumerators conducted the interviews under direct assistance and supervision from forty-three heads of village, twenty-one commune council members, and two provincial counterparts. The enumerators were able to interview 11,937 households.

#### Second Round

A total of 22,298 households in three districts of three provinces have been selected for the CBMS sites. The sites under Phase I (six communes) were also selected for this Phase II. Three communes (Prek Norint, Samrong Khnong, and Prek Luong) were chosen from Ek Phnom district of Battambang province; three communes (Snuol, Khsem, and Sre Char) were in Snuol district of Kratie province. Six communes (Kampong Chen Cheung, Msar Krong, Trea, Rung Reoung, Banteary...
Stung, and Preah Damrey) were selected from Stung district in Kampong Thom province. Data collection was conducted in two cycles going from one site to the other. The census was done on the basis.

**Third Round**

In 2006, CBMS survey was conducted in three communes of Krattie and Battambang province and six communes of Kompong Thom province. All villages and households were included in the survey. For this survey, Battambang were selected since the province is located in a fast growing and developing area. It is also known as one of the rice surplus producing provinces in Cambodia. In addition, Battambang province has experienced more dynamic economic activities and growth than other two CBMS province. Five villages (Samraong Outrea, Bak Amraek, Svay Chrum, Reach Dounkeo, and Sdei Leu) under Phase I and II of CBMS sites were chosen from Prek Norint, Samrong Khnong, and Prek Luong Ek Phnom district of Battambang province.

For this survey, the households interviewed in 2006 were also selected to be interviewed again in September 2008 to create the 1132 panel household data as part of a research initiative to demonstrate the use of CBMS data for monitoring impacts of an economic crisis on poverty. Table 2 shows the number of total panel households and characteristics of each village covered in the CBMS sites. Data collection was conducted in two cycles going from one site to the other.

**Table 2: Village selection characteristics**

<table>
<thead>
<tr>
<th>Village</th>
<th>No. of HHs</th>
<th>Commune</th>
<th>Village characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Svay Chrum</td>
<td>216</td>
<td>Prek Norin</td>
<td>Close to the market centre, rice farming and petty trade are main source of income</td>
</tr>
<tr>
<td>Reach Dounkeo</td>
<td>150</td>
<td>Prek Norin</td>
<td>Remote village, wet and dry season rice and fishing</td>
</tr>
<tr>
<td>Samraong Outrea</td>
<td>343</td>
<td>Samrong Khnong</td>
<td>Good road access and connection to market, rice farming, fruit trees and petty trade</td>
</tr>
<tr>
<td>Sdei Leu</td>
<td>234</td>
<td>Prek Luong</td>
<td>Cash crop and wet rice farming</td>
</tr>
<tr>
<td>Bak Amraek</td>
<td>189</td>
<td>Prek Luong</td>
<td>Wet and dry season rice farming and fishing</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,132</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Household listing

Field work was launched immediately after the field enumerators' training. The local enumerators in cooperation with the village chiefs and the commune councilors started to do mapping before household listing. The village chief drew his own village's draft map assisted by the enumerator. The village chief also assisted the enumerators by giving geographical guidance and making household interview appointments.

The enumerator(s) with the draft map as their guidance listed the identified households and posted stickers on the strategic places outside of the house where it is safe and easy to see. The village chief and the enumerators were to discuss among themselves which was their starting point and to which direction they will take until they reach the last household. The households list and the identification of the household were drawn on the map.

The household listing aims to provide the ordinal number of households from one side of the village to another. A form for household listing was provided to the enumerators. The household listing form provides building/house number, household number, name of household head, address, number of male and female and total of usual members, occupation of household head. The ordinal number of household is the serial number of questionnaire for the household. It is used as an ID number of the household.

The household listing also intends to verify and update the number of households in the village(s), based on the definition adopted for the CBMS system. Stickers written with province code, district code, commune code, village code, building/house number and household number are posted on the door or in the safe-place that can easily be seen. The enumerators are instructed to use and write down the serial number of the household from posted sticker in the household questionnaire before interviewing. Or the enumerators can copy the household ID number, that needs to be written on the questionnaire from the household listing. The village chief and the commune councils can also use the household list for other purposes.

For the task of household listing alone, depending on the size of the village, the interviews took 2 to 4 days per village. The enumerators worked reasonably well under close supervision of a commune council member, district and provincial partners, who reported directly to the Supervisory Team.
Household Interview

Interviewing starts after household listing and mapping is completed. Depending on the size of the village, all interviews took about one month for each village. It takes an hour to one and a half hours on the average to complete a questionnaire. The enumerators work under close control and supervision of the commune council members, provincial and district partners who must report every day to the local research supervisory team. The enumerators were required to wear ID cards while in the village.

The interview is postponed in case the head of the household or any eligible member is not present. Appointments were arranged with the households whose members worked far from the village. In case of reachable distances, enumerators made interviews at the business or workplace or farm places. For the households, whose members worked outside the village area or in the countryside that they could not be reached for appointments or are not available during the time of data collection, they were identified as locked-door households.

Field Supervision

The provincial and district partners as well as the village chiefs and commune councilors, took part in supervising the enumerators. A commune council member reviewed papers of two or three villages depending on the size of villages in a commune. If a commune consists of more than nine villages, a commune member takes four to five villages under his/her supervision. It was observed that communes that consist of more than ten villages have small size of households. If questions or issues encountered could not be solved in the field, enumerators could ask either the commune councilors who acted as supervisors, the district, the provincial partners or go directly to the supervisory team members.

The local CBMS research team of the NIS visited and supervised at least two times per province. Spot checking was done to clear whether the information collected by enumerators were properly asked or coded. Supervisory members checked all enumerators and randomly picked up the filled up questionnaires to rectify mistakes and make correction(s). The corrected questionnaires serve as a sample so that the interviewers will avoid repeating the same errors. During the fieldwork, the supervisory members were very attentive in checking possible errors of all enumerators, ensuring that these errors are avoided in the future and to avoid the piling of mistakes. The manner of supervision is very important in this CBMS census methodology to ensure the quality of the data.

2.3. Data Processing

The processing of CBMS census results involves two stages.
The first stage entails manual editing, computer processing and analyzing of the results. The work at each level is designed to cover the following:

- Village: manual checking and editing
- Commune: manual editing and coding
- District: supervised manual editing and checking and verifying
- Province: Data entry, computer cleaning, analysis of data and preparation of preliminary report (village and commune) from the analysis using identified computer software
- National Level (NIS): Preparing the full report for the commune and the district

After results have been compiled in Stage I, the questionnaires were sent back to the commune for manual processing and analysis-making for their needs. In this second stage, the training for manual processing is conducted for selected the enumerators, the village leaders and the commune councilors. After data cleaning, the manual data entry and the tallying will be performed by selected enumerators for each village. In some communes, where the enumerators do not have good numeric skills, the commune council members assume the responsibility to process the data. It is the commune council members’ responsibility to have the data checked and validated.

The local research team at the NIS developed the tools for data entry. SPSS and Excel spreadsheets were used for computerized processing of data.

The provincial planning statistics officers were trained in the use of SPSS and Excel software for data entry, for data cleaning, and data analysis of the results for the commune level and district level. Data entry for computer processing was only done at the provincial level. This cannot be done at the district and commune level due to lack of manpower, computer and electricity. With the limited number of computers and staff at the provincial level and with the large number of respondents, some the questionnaires were processed at the NIS to assist processing of data.

Earlier on in the pilot implementation of CBMS data processing tools have been developed for both manual and computerized processing. Manual processing was divided into three parts: (i) filling up of spreadsheet frames by the enumerators, (ii) tabulation of data to produce a village statistics base, and (iii) aggregation of all the village data to produce a commune statistics book. The commune statistics book was further analyzed by commune council members for the production of a "commune poverty report" which constitutes a major CBMS output at the commune level. In addition, a data entry frame in SPSS was developed for computerized processing by the provincial statistics office. This was used to verify the accuracy of manual processing at the village and commune level.
In each province, the training of data processors was conducted in two parts: manual data processing training at the village and commune level, and computerized data processing at the provincial level.

At the village and commune level, about 60 participants have been trained in manual processing, or roughly 2-3 persons per village. They used a calculator to do additions and calculate the percentages. The problem in this step was the errors in dealing with too many digits and numbers, especially the percentage of farmland, income, expenditure, asset, and poverty derived from expenditure per capita.

At the provincial level, 10 statistics officials at the provincial statistics offices were selected and trained to do the computerized data entry. An application frame in SPSS was developed and installed for them. It was useful to have the statistics officials involved in this work because some had already had experience in data entry. Unfortunately, there were not enough computers with adequate capacity to install the SPSS software.

It was a valuable exercise because after the explanation and presentation of examples of data processing, all participants could start practicing in data processing and pointing out difficulties. It should be noted that data processors with high school education did better than others of lower education.

### 2.4. Data Validation

Completed questionnaires are checked and verified by commune council members from the CBMS sites. The commune council members are responsible for checking and validating the data processed. They are also responsible for processing, aggregating and producing tabulations for the commune level statistics, which will be used as basis for the preparation of the “Commune Poverty Report”.

Figures 1 and 2 show some examples of CBMS data and poverty maps that can be produced as part of the commune poverty report.
Figure 1: Proportion of households without access to sanitary toilet facilities, Snuol District, Kratie Province, 2010

Source of basic data: CBMS Census, Snuol District, Kratie Province, 2010
Figure 2: Proportion of households without access to safe water supply, Snuol District, Kratie Province, 2010

Source of basic data: CBMS Census, Snuol District, Kratie Province, 2010
3. Uses of CBMS Data

Producing Commune Poverty Statistics Books

As a result of the pilot implementation of CBMS in 2003-2004, six communes covered by the undertaking were able to produce their own the poverty statistics books that they use for planning and monitoring purposes. In addition to poverty rates at the village level, the CBMS exercise provided scientifically generated statistics regarding demography, education, housing, land, water, health, household expenditure, occupation and income, assets, livestock, and domestic violence. It was expected that the data will be periodically updated, perhaps every two years. The results have been widely shared with various stakeholders for possible consideration of its adoption in other areas. As part of the successful advocacy for the pilot CBPMS, the Government of Cambodia conducted a National Forum on Pre-Identification of Poor Households in 2005, which was an effort to discuss various approaches for the identification of poor households under the umbrella of its poverty reduction strategy. As a result of the forum, a Technical Working Group on Pre-identification of poor households was planned to be set up and led by the Ministry of Planning.

Under the leadership of the local CBMS research team at the Ministry of Planning in 2006, data generated from the implementation of CBMS in additional sites in the provinces of Battambang and Kratie was also used for producing poverty commune report. The CBMS initiative has also successfully promoted links between the communes; provincial and national level planning processes through the use of CBMS data. The initiative has likewise developed the capacity of local authorities in the pilot sites to implement the CBMS in their localities. It also provided a basis for the Ministry of Planning to draw on experience in combination with the qualitative method of identification of poor households by other NGOs to establish a national system of identifying poor households. The Ministry of Planning has established a “Working Group on Poor Household Identification” (WGPHI) in which CDRI and NIS are members. The working group has been studying a set of indicators that best predict the poverty status of the households with the objective to establish a simple, statistically sound tool that can be implemented to identify poor households nationwide to serve the targeting purpose. It is envisaged that the CBPMS will further contribute to this process.

Impact Monitoring

Panel data generated from the implementation of CBMS in 2006, 2008 and 2011 in 5 villages in selected CBMS sites in Battambang Province was used to assess the impact of the global financial crisis on both rural community and individual households, and draw evidences of rural people’s experiences of the spilled over impact of the economic crisis on wellbeing and poverty in the selected five villages of CBMS sites (Try and Kim, 20__) . The CBMS panel data prove to be a
powerful and cost effective tool for not only monitoring poverty but also assessing the impact of hiked prices on poverty, food security and coping strategies that rural people used in response to hiked prices. In the long run, it also a useful tool to be able to keep track of community development, growth and the challenges that each community faces during periods of experiencing hiked prices. It is useful as well for effective local planning and implementation of national policy for a stronger community to be able to cope with any unexpected shock and crisis.

The findings from the CBMS survey support stronger commitment and timely intervention to support small farmers and the poor. The policy action should accelerate efforts of rural infrastructure development: road and irrigation facilities, outreaching effective extension service to support both crops and livestock production. For landless poor, however, special social safety programme and vocational training should be reflected in the community development planning and funding.
References


Ministry of Planning Cambodia to the PEP-CBMS Network Coordinating Team, CBMS Network Office, De La Salle University, Manila.


Try, S. & So, S. (2009). Impact of Hiked Prices of Food and Basic Commodities on Poverty in Cambodia: Empirical Evidences from CBMS Five Villages


1. Context and Rationale for the Implementation of CBMS

1.1. Background

The government of Lao PDR has reiterated its strong commitment to the objective of poverty eradication in order to achieve its national development goals. To this aim, in June 2004, the government has endorsed the National Growth and Poverty Eradication Strategy (NGPES). NGPES emphasizes a certain number of essential linkages between the four main sectors, several supporting sectors, cross sector priorities and specific national programs. A Community-driven and access-oriented rural development strategy is a base for poor district development. Rural development is center to the government’s poverty reduction efforts as rural poverty is prime concern and a community-based approach essential to its eradication. In this regard, the principles of participation and decentralization play an importance role in linking the planning system to the poverty reduction strategy.

Lao PDR is implementing a number of economic programmes such as to stabilize the macroeconomy, promote growth, and subsequently reduce poverty. The implementation of the NGPES, therefore, demands on information of the poor especially at the community level. It is necessary to have a system for monitoring and evaluation, especially for programs and policies towards poverty alleviation. The monitoring in Lao PDR has been adopted a bottom-up approach system from the community to the national level. This system is based on the data collection of the National Statistical Center through “Village book”.

The adoption of CBMS as a tool to build up a system of poverty monitoring addresses inadequacies in terms of capacity at districts and village level in data collection, and the data shortfall on communities. The implementation of CBMS is also in line with developing the capacity at the grass root level to ensure the effectiveness of decentralization, and to address concerns in designing and prioritizing programs and policies that will alleviate the rural poverty due to lack of needed data.

During 1990s poverty analysis and monitoring have drawn heavily from Lao Expenditure Consumption Surveys (LECS), which take place every five years. It seems that the monitoring of poverty during 1990s was not progressively in place. Annual assessment did not exist at all until 2001. In 2004 the Community-Based Monitoring System (CBMS) was introduced by regional IDRC and CBMS coordinators in the region to National Statistics Center. Lao PDR has adopted and implemented the CBMS in 11 villages in Toumlan of Saravan province. It was expected that in the future CBMS will be adopted nationwide. All received data information and analysis of CBMS project will be supplemental fundament of the existing “Village book” for monitoring and evaluating

Capacity on assessment and monitoring poverty is extremely needed for Lao PDR, especially the monitoring skill of poverty in local level. In implementing and monitoring of the NGES there is demand on information of the poor especially at the community level. The monitoring in Lao PDR
has introduced the bottom-up approach system using the community based data collection or so called “Village Book Statistics”. These village statistics has initiated and implanted in selected area of the country (10% of villages). However, this tool is not yet fully developed for local government in terms of questionnaire design and methodology of data collection.

Therefore, in order to further improve the village statistics book, which will be used as a tool for socio economy and poverty monitoring in Lao PDR, National Statistical Center has received financial assistance from IDRC through PEP-CBMS network.

The PEP-CBMS Network has supported the CBMS research project initiative in Lao from 2004 to 2009. The project covered the development and pilot test of CBMS tools in local context, use of CBMS data for preparation of poverty profiles (village books), and application of CBMS for monitoring the impacts of the global financial crisis. Through the pilot implementation of CBMS, government staffs from Sepone districts, Toomlane district and in 24 villages were trained with the technique, real practice on the data collection. Moreover, data from the last project is very helpful in village planning.

In response to the degree of the Prime Minister, number 09/PM and 13/PM launched in 2007 and 2008 on the building of the developing village group, the project provided socio-economic development data for the local government where they can use it to evaluate their launched planning. The result of the CBMS is very useful for their later year planning and budgeting process. In terms of evaluate the progress in achieving the millennium development goals or MDGs, the CBMS initiative has also provided the data that could be used to assess the poverty level of their own local area.

In 2009, CBMS data collection has expanded to cover 24 villages to 31 villages in Toolan and Sepone to examine the impacts of the global and financial crisis that may affect the Lao economy especially the social welfare of people in villages or community. Aside from monitoring the impacts of global financial crisis and economic crisis on economy and find out the policy that could prevent and cope with the impacts for both micro and macro economy, the expansion of the CBMS initiative in Lao intended to continue and expand the capacity building of the local government in terms of data collection, and in the use and reporting of the data.

1.2. Local Governance Structure

*Government planning process*

The Government of Lao PDR employs a combination of top-down and bottom-up approach to planning process. The central government sets national development goals, targets and strategic directions every five years (NSEDPs) and annually. It is communicated horizontally with the line ministries and down to the sub-national levels of provincial, district, kumban and village. The bottom up approach is used for identification and prioritization of public investment projects, requiring its

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1 Drawn from National Governance and Public Administration Reform (NGPAR) programme Secretariat / Ministry of Home Affairs (MoHA) of the Government of Lao PDR (2016)
consultation process starting from the village level to be consolidated upwards to kumban, district, provincial, ministerial, and up to the central government level and the final approval by the National Assembly (NA). The Guidelines on District Socio-Economic Development Planning issued by the MPI (November 2013) has been used in the process.

In actual practice however, the participatory planning process has not been fully followed, caused by lack of predictable budget information provided and limited capacity of the district administrations. There was no formal coordination mechanism for participatory planning at the village level. In developing five-year socio-economic development plans (SEDPs) and annual plans, each line office would assign its official to visit and consult with village authority and collect data and relevant information from the villages (e.g. district health office working with village health volunteers and village authority to collect health care related data). In reality, the SEDPs were developed based on the available data from the information management system of the line offices (e.g. Education Information Management System of the District Education Office). Based on the SEDPs, each line office would develop annual plans and submit them to District Office of Planning and Investment Office (DoPI). DoPI consolidates them into annual district plans and develops project proposals using the Project for Enhancing Capacity in Public Investment Programme Management (PCAP) template provided by MPI. The budget plans are developed and included in the project plans. However, not knowing the size of budget allocation and whether projects would be funded at all, the district administrations used to produce planning document as a wishful list.

1.3. Review of Existing Monitoring Systems

During 1990s poverty analysis and monitoring have drawn heavily from Lao Expenditure Consumption Surveys (LECS), which take place every five years. It seems that the monitoring of poverty during 1990s was not progressively in place. Annual assessment did not exist at all until 2001. Poverty Monitoring and analysis in the Lao PDR has so far been mainly based on the Lao Expenditure and Consumption Surveys (LECS). The last LECS III was conducted in 2002/2003. The fourth round of LECS (LECS IV) has just started in April 2007. To assess and monitor poverty in the Lao PDR, quantitative measures were used as well as qualitative assessments.

Quantitative measurement using poverty lines

The Lao Expenditure and Consumption Survey (LECS) data sets from 1992/1993, 1997/1998 and 2002/2003 have provide the basis for poverty monitoring particularly in estimation of poverty line. The establishment of the food poverty line follows the current standards used in developed countries, World Bank and other international organizations that use the figure of 2100 calories per day per

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2 Drawn from Keosiphandone (2007) p. 3-5. The Uses of Community-Based Monitoring System (CBMS) in the Planning and Monitoring Process in Saravan, Lao PDR
person as the necessary food requirement. Those with total expenditures and consumption total less than the equivalent of 2100 calories are considered to be living below the food poverty line.

**Qualitative Assessment**

Qualitative analysis of poverty nation-wide began with the implementation of the Participatory Poverty Assessment (PPA) in the year 2000, which made possible a comprehensive analysis of poverty in the Lao PDR that emphasized causation and perceptions of poverty throughout the multiethnic population. The PPA recorded the experiences and concerns of the people in order to initiate and identify public and private actions to reduce poverty. This was accomplished by combining different forms of knowledge on poverty (statistical, cultural, anthropological, institutional, economic, etc.) and also, by understanding the views of poor people and applying these towards the goal of poverty reduction. The goals of participatory assessment are to improve the understanding of actions that may be expected to make positive difference to the livelihoods, well-being and quality of life of poor people.

**Village Book**

To fill in the gap between LECS data collection and analysis, in mid of 2001, the Lao Government is in the process of developing a poverty reporting system within the country following the Prime Minister’s Instruction No.10, dated 25 June 2001. The Instruction introduced specific criteria for defining poverty at the household, village, district and provincial level and defined poverty as "the lack of ability to full fill basic human needs, such as: *not having enough food, lack of adequate clothing, not having permanent housing, disadvantage in health, education and transportation.*" These criteria were incorporated into the data collection system, referred as village book, as a tool for monitoring. The Village book aims to collect socio-economic information from grassroots level consisting of data on population, housing, agriculture, labor statistics, education, health and poverty. The village chief is responsible for filling this book and for reporting to districts. The district reports to the provincial office and then report to the National Statistics Centre (NSC) once a year. However, there are still some issues to be improved, particularly the capacity building at village and districts as well as provincial level.

The village Book is a main source for data collection from the grass-root level to support this Instruction No. 10/PM and help the village chief in profiling of their village. The provincial and district officials in collaboration with villages' officials have to visit the households in order to collect information and assess the situation in each village.

The “Village Statistics Book” is a useful instrument for monitoring the socio-economic profile of villages, especially within the context of districts being the planning and fiscal units and villages the implementing units.
2. Key Features of CBMS

The overall purpose of the CBMS initiative in Lao is to ensure quality of data and enhance capacity of local data collector and provincial statistician and assist the provincial officers to develop and design a tool for data collection via the “Village book”. CBMS aims to build capacity of local authorities in data collection as well as to provide practical scientifically generated data to local authorities for their effective planning, monitoring and evaluation of priority development projects.

2.1. Adjustment of CBMS Methodology to Lao’s Context

With the strong commitment of government to achieve the objective of poverty eradication in order to achieve its goals of overcoming the status of Least Developed Country by the year 2020 an operational poverty eradication program is significant important. Based on this policy, the National Growth and Poverty Eradication Strategy (NGPES) was developed and adopted by National Assembly during 2001.

In implementing and monitoring of the NGES there is demand on information of the poor especially at the community level. To measure the social and economic performance of the country as well as NGPES it is required to have a set of data and information which reflected the results of socio and economic performance in different level, particularly at the unit of implementation. The monitoring in Lao PDR has introduced the bottom-up approach system using the community based data collection or “Village Book System” and the Lao Expenditure and Consumption Survey for poverty monitoring for national level. The Village Book has been improved. The questionnaire and methodology for data collection have been redesigned by implementing the CBMS. The adoption of CBMS tools is intended to ensure quality of data and enhance capacity of local data collector and provincial statistician. The purpose of the CBMS initiative in Lao is to assist the provincial officers to develop and design a tool for data collection via the “Village book” and to build capacity of the selected local authorities in data collection. Moreover, CBMS also aims to provide practical scientifically generated data to local authorities for their effective planning, monitoring and evaluation of priority development projects.

The CBMS, particularly through the village book to be generated using CBMS data, aims to capture socio-economic information from grass-root level to include data on population, housing, agriculture, labor statistics or main activities, education, health and poverty. The village chief is responsible for filling this book and report to districts, district report to provincial office and then report to NSC.

The CBMS initiative by NSC in Lao conducted a pilot survey in 4 poor villages in the poorest district in Savanakhet and Saravanh province in 2004 and implemented the main survey in 2005. The survey covered 24 villages in the same districts as the pilot period. 13 villages in Sepone and 11 villages in Toomlan were selected for CBMS implementing. The selection of villages in Toomlan District is based on the focus area of provincial government, so called “Development Villages”. The selected villages in
Sepone are not development villages but are expected to be formed as development villages in the near future.

The CBMS was developed according to the need of localities for their planning and policy making process. The CBMS is designed to produce a poverty monitoring report system which will be a main tool for district and provincial authorities to better monitor and evaluate the impacts of development policies and programmes undertaken in their locales and to inform decisions about allocation of resources to reduce/eradicate the poverty. A combination of CBMS will feed into the national data collection on socio-economic and poverty monitoring system for the country. The NSC intended CBMS to help the existing Village Book of Laos to provide an appropriate and suitable tool to address the needs of local authority.

**Implementation of CBMS in Toumlan Saravan**

The implementation of CBMS in Toumlan Saravan primarily aims to strengthen local capacity for data capture and data analysis, to supplement the existing system of data collection (“village book”) at the village level, and to develop an appropriate tool with reliable information for poverty monitoring for village chief, district governor. At the same time, CBMS was intended to improve the coordination between the national statistics centre and local authority.

Before introducing CBMS in Toumlan district of Saravan, it was found that current system of village book is more appropriate for data aggregation and data reporting instead of primary data collection. It consists of aggregated indicators of the village. One step of primary data collection at the household level is missing. Villagers are asked to aggregate data into village book without providing any tools to collect data. As such, there was a need to develop a specific questionnaire that can be used in the collection of primary data at the household level and compile indicators and aggregate them into village book. In this regard, CBMS found its important role to complement the efforts of the village book system. CBMS also gathers other additional information/indicators relating to the poverty.

The objective and purpose of village book is very similar to CBMS. Its main focus is capacity building of local authority but different in methodology of data collection and data processing. CBMS has more reliable and scientific method and easy for the village chief to aggregate the data.

The CBMS project in Toumlan has been undertaken over the period of 24 months, from March 2004 to March 2006, divided into three phases: the first phase from March 2004 to September 2004 was preparation; the second from October 2004 to March 2005 was testing (pilot) phase and the third one went on from April 2005 to March 2006. It covered 11 villages of Toumlan district. At the beginning, the questionnaires for village and households were reviewed and developed. Then, training on data collecting and gathering to fill in the village book for village chiefs and districts officers was organized. The training has also been conducted for provincial staff on data analysis, data processing and data tabulation. At the end, the final report of findings was prepared and disseminated to the policy maker at the national and local level.
Over the period of CBMS project in Toumlan (2004-2006), local government has also spent 40 million Kip (nearly 4,000 USD) budget for similar trainings/workshops in other districts with the purpose of transferring knowledges and methods of CBMS. Selected participants were sent to Toumlan for field study. After the end of CBMS in Toumlan, the fiscal year 2006-2007 we allocated same amount of budget for expanding knowledges learned mostly for trainings of other districts. However, due to this very limited funding, only few people were able to be trained and put into practice. Up to now there is no other international organization or NGO supporting village level statistics in Saravan.

2.1.1. Core Poverty Indicators

The implementation of CBMS in Lao from 2004-2007 generated indicators relating housing, employment, education, health, to income, expenditure, and ownership of properties. Details of the indicators of CBMS in Lao are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1: CBMS Indicators, Lao PDR, 2005 and 2007</th>
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<td>Dimensions of Poverty</td>
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## 2.2. Data Collection

Data collection is done as full enumeration (not a sample). The CBMS survey captures data on main socio and economic information of household related to poverty monitoring. The statistical unit of measurement is the household. The village head, the head youth and women organization and village security group serve as enumerators or interviewers. Before the field operation enumerators, are trained on how to collect data and how to fill in the questionnaires.

### 2.2.1. Data Collection Instruments

Data is collected using the CBMS village statistics household data collection form. The form collects information on households and population. Some of the data collected are as follows:

- demographic data i.e. age, sex, sub-location,
- population change in the past 12 months from the data of data collection i.e. new born, migration

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<th>Income</th>
<th>Proportion of households which have agriculture as main source of income</th>
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<td>Proportion of households which have private employee as main source of income</td>
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<td>Proportion of households which have hunting and forest products as main source of income</td>
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<td>Proportion of households which have others as main source of income</td>
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<th>Property and durable</th>
<th>Proportion of households which own estate</th>
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<td>Proportion of households which own a car</td>
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<td>Proportion of households which own telephone</td>
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| Expenditure | Share of food and non-food expenditure |
| Consumption | Share of food and non-food consumption |
• employment by sector and type of occupation
• housing by type of construction materials
• sanitation
• water source
• energy used for cooking
• agriculture i.e. land area (for planting, harvesting, and production) by type of crop
• livestock
• education
• health i.e. population who got ill by type of disease, preventive tools for mosquitos
• poverty evaluation i.e. household consumption of rice, household with members who lack clothes, households with permanent housing, household with enough money for healthcare if members get sick, household, household who can afford to send children to school
• sources of household income
• ownership of property and durable goods
• expenditures and consumption

2.2.2. Identification and Training of Enumerators

During the first phase of CBMS implementation: The village head, the head youth and women organization, and village security group served as enumerators or interviewers. A training programme was conducted for provincial and districts supervisors and enumerators. Training is an important component in building capacity of the staff at the districts and provincial level. The training for supervisors and enumerators focused on how to collect and validate data, and on basic approach for manual data compilation.

During the second phase of the CBMS implementation in 2009: 19 participants from Toomlan and 31 participants from Sepon statistics office at the provincial, district and village levels were trained on data collection, data compiling, and data recoding into the questionnaires in accordance with the content and the purpose of CBMS. In 2010, an additional 9 participants from three villages of Sepone district, Savanakhet province were trained on data collection specifically to gather additional data to monitor the impact of global financial and economic crisis. The training was conducted in cooperation with the planning divisions of Savanakhet and Saravan province. A second
round of training was conducted in 2011 in Sepone district (31 participants) and Toomlan district (20 participants) from central, provincial, district and village levels as part of the capacity building on data collection for the impact study on the global financial crisis.

2.2.3. Study Area

First Phase

Two districts (Sepon and Toomlan) and 24 villages are selected for the implementation of CBMS. The sample villages were chosen based on the agreement between the provincial Committee for Planning and Investment and NSC. These villages are located in the poorest districts (47 poorest districts out of 142). There are 4 villages in the pilot survey; two in Sepon district in Savannakhet and two in Toomlan district in Saravan province. Sample selection has not applied any statistical technique since focus is on some districts where the local authority shows interest to implement CBMS. The Director of Committee for Planning and Investment is the lead person for the process of selection of the CBMS villages.

The pilot survey was intended to pilot test the questionnaire and the contents of village book and tried to examine the village capacity to adopt the CBMS tools. A number of people from the village were involved in data collection during the pilot test. The pilot of the CBMS data collection tools was conducted in 2004.

Second Phase

The first round of data collection for CBMS was done in Sepon in 2009, and in Toomlan in 2010. The CBMS data collection for the study to monitor the impact of global financial and economic crisis at the three villages in Sepon was done in 2010. The supervisors from the two provincial statistical offices have closely followed and supervised and did spot check during data collection.

A second round of data collection was done in Sepone and Toomlan in 2011. The target villages for data collection still focused in the same villages as the first round of data collection in order to make a comparison and observe the differences in the poverty situation in the localities.

2.3. Data Processing

During the first phase of CBMS implementation, the local CBMS research team from the NSC developed a data entry program using Microsoft Access and then installed it in the provincial statistical office. The training was conducted for data entry on how to encode, check, correct and edit the data.

The data entry and editing were done in two steps: First the enumerators check the validation manually. Second the districts, provincial and officers recheck the quality and consistency. The data entry, editing and cleaning the database was done by provincial staff and were supervised by NSC staff. Then the database was brought to NSC for analysis, processing and tabulation.
In some villages in Laos, there were neither electricity nor computers. Thus, CBMS data was processed manually or using electronic calculators. The village chief or his/her assistance were trained to process the data manually by district officers. The data were computerized at the District Statistics Office partially (at aggregated data) and the whole data processing were done at Provincial Statistics Office under the supervision of the NSC. The result is reported to the Provincial Planning and cooperation Office and NSC.

After completion of data entry and verification, data is forwarded to NSC for analysis, processing and tabulation using SPSS due to lack of capacity and computer facility of local statistics office.

The NSC has also organized a course on data processing and tabulation for provincial statistician using MS Excel since there is lack of other software available at provincial office in order to increase their data processing capacity. This course was found useful and helpful for provincial officers and introduced local statisticians in the process and tabulation of their own data.

The provincial office is practiced the basic tabulation for their exercise using the MS Excel. Due to lack of capacity and computer facility of local statistics office all data processing and analysis is using SPSS. Equipment and software used: PC with software Microsoft Access and SPSS ver. 12.0. Data base is restored as Access files.

**Second Phase**

The data checking was done first by enumerators with household manually, then rechecked by authorities at district level for validation, consistency of data, and then sent to the provincial planning and investment department. The data checking took about one month. During this time the CBMS team at DoS provided advice in case they have any clarification related to the answer in questionnaires. Now, the data checking at provincial level completed. However, the data validation still needs to do after finish data entry.

For the first round of data collection, the data entry for CBMS was done in Saravanh province by the provincial staffs after completion of data collection and checking of questionnaires. The data entry for the CBMS-GFC survey was done by the CBMS team at DoS since it is new additional questionnaire and more complicated than the CBMS core questionnaire. Before incorporating the data into the system, the questionnaires were rechecked again to make sure every appropriated data is valid and not missing.

**2.4. Data Validation**

There following steps are done for data validation.

a) The survey team leader reviewed whether all questionnaires are completed. The survey team leader and village chief have to signs on every questionnaire that he/she has checked correctly. In the cases where there are mistakes in the responses, the survey team leader sent
the responsible enumerators to re-interview the household.

b) The officials from the Provincial Statistics Office as well as the Supervisors will re-check to reinforce the quality of data and to ensure that the quality of the data collected through interview with individual household in the village represents the real situation in each particular village.

c) The CBMS-DoS team processed the manual compilation for a number of identified indicators in each village and organized a technical meeting with representative from the village and key informants, health workers, teachers, member of community to present the preliminary result and discuss whether the data presented reflect the situation of the village.

d) Before the data entry some coding were done and rechecked for consistency again, and thereafter upon completion of data entry, the data are further edited and checked.

e) Once the report on the data analysis was finalized and produced by the CBMS Project Team, it was presented to the local community.

Different shape files, info graphs and pictures were used for the communities to have a clear understanding of the status of the poverty in the area and modifications could be made in case there are inaccuracies in the data i.e. missed data and elements during the census.

The CBMS-DoS team presents the primary findings with local people to discuss about the summary results. A consultation workshop is organized and conducted which was participated by local planning and investment offices and district officers.

2.5. Database Management

The data entry, editing and cleaning the data base was done by provincial staff and were supervised by NSC staff. Then the database was brought to NSC for analysis, processing, and tabulation. Equipment and software used: PC with software Microsoft Access and SPSS ver. 12.0. Data base is restored as Access files.

2.6. Dissemination

**Local Level:** The CBMS findings were disseminated first through a consultative meeting with provincial Committee for Planning and Investment and then organized a dissemination workshop at Sepone and Toomlan districts where all villages chiefs, representatives from various sectors and departments of districts are invited in July 2005 December 2005 and in July 2006 and March 2007. The provincial CPI has authorities will further disseminate the pilot CBMS to other villages and districts for consideration and potential adoption through their regular reporting system.

**National Level:** The CBMS results were disseminated through a national workshop for all partners of the CBMS initiative and relevant government agencies so that they will continue to expand the
CBMS. NSC would encourage all the users and policy makers to use the CBMS data for analytical study of the poverty situation in the selected Villages. The information is intended to help design policy interventions and target the vulnerable groups including the poorest of the poor in the district.

Publications: The CBMS team has produced one report of pilot survey and report of findings from the survey in 24 villages as planned and distributed to all villages in CBMS sites and other users. The publications were printed both in Lao and English.

3. Uses of CBMS

The Lao government continues its decentralization policy by emphasizing “villages as implementation unit, districts as planning and fiscal unit, and provinces as strategic unit”. The link of planning, implementation and monitoring are fundamental of this initiative. While capacity building at national level is very important, provincial and district level is a major concern. Increasing the capacity at the district level will be the factor enables village participation in the planning process and enhances the interaction between district official and villagers for data collection, planning and monitoring process.

Poverty Monitoring and Planning

First, reliable systematic data and information from the villages is essential for analyzing development patterns overtime. The CBMS, taking the case of its implementation in Toumlan, provides a valuable and reliable database for social-economic development planning. In particular, poverty profiles of villages have been generated using data from implementing CBMS (see for example Souksavath, 2005; National Statistics Centre [NSC], 2006).

By answering important questions such as: what are the strengths and potentials of particular area; what programs have been implemented with what outcomes and effects; what are the weaknesses of past public investment programs addressing the need of the poor, the use of CBMS with village book is found to be very useful (Keosiphandone, 2007). For example, micro finance scheme in some villages did not have success as intended because lack of market access, while most of the other villages received remarkable progress. Some areas did not call for public investment but they have much potentials for private investment. After that, the information from the CBMS village book is used for improved targeting of projects for poverty alleviation and for allocation of resources in public investment planning.

At the same time, private investment and NGOs and donors found that the data sources from CBMS-based village book very comprehensive since they need not conduct an additional survey.

The CBMS and village book also found its strengths for local poverty monitoring such that it not only identifies the poor household, poor villages and poor districts in combination with other data source mainly the Lao Expenditure and Consumption Survey (LECS) data, but also shows, from time to time, data on the progress and development of each households, village as well as
district. Interestingly, it was found from the CBMS implementation that one village has high increase of incomes yet poverty level did not decline. Analysis of the CBMS data showed that households in the village spent most of income for alcohol and satellite TV. This kind of information could not be seen by using periodic survey.

In the past there is no system for local authority in the CBMS sites to control and monitor their own community. In most of the villages, the village chief only fills in the form without reference and there is no system of keeping the records at the village. With the CBMS-based village book in place, data base is made available at village thus increasing technical capacity and the sense of ownership of local people.

Among the most important benefits of CBMS to the local authorities are in terms of:

• Increasing awareness of the importance and quality of data and the use of data

• Strengthening village’s capacity in data collection, compilation methodology, checking and validation of data, preparation the villages and district profiles

• Strengthening processional skills of district and provincial officer in data processing and data analysis

• Increasing the participation of local people in poverty monitoring and poverty reduction

• Increasing the participation in community ownership planning and decision making.

**Monitoring Child Poverty**

CBMS data can also be used to examine poverty conditions of sub-population groups. For instance, Viphonxay (2010) examined child poverty in selected CBMS sites in Lao PDR using data generated from the sites. The study showed that about 67.2 percent of children 0-14 years old in the study sites are living below the national poverty line and factors like family size, number of children, access (or no access) to secured housing and engagement in upland cultivation affect child poverty. It pointed out evidence that an increase in the number of children, for one, can drastically affect children, making them more vulnerable in terms of food security and lessens chances in development (i.e. good education and better nutrition). Having no access to secured housing means another expense for the family, thus priority in children’s development is lessened. Living in the rural areas or far from the market makes the situation worse since the possibilities of earning more for the family through product exchange and engagement in income-generating opportunities in the market are lessened.
Monitoring Impacts of Crisis

CBMS can also be used for monitoring the impacts of crisis. The implementation of CBMS in selected sites in Lao in 2009-2010 generated village level data on the impacts of the global financial and economic crisis taking the case of selected sites in Toomlan and Sepon districts (See Department of Statistics, Ministry of Planning, 2011)

Lessons for Sustainability of CBMS

The implementation of CBMS is valuable for capability building and analysis at the local level as well as research skills and project management of National Statistical Center (NSC, 2007). There were a number of consultation meetings within the government and donors on the CBMS and the village book. The process of advocacy has been integrated in the user producer meeting of the NSC where all policymakers and data users from government, the private sector and donors are invited. However, this is only at the national level. It is important in future CBMS implementation to increase advocacy by taking into account the model of CBMS implementation in Toomlan and Sepone districts.
References


Chapter 3
CBMS in Latin/North America

Argentina

1. Context and Rationale for the Implementation of CBMS

1.1. Background

Argentina in the past has been a fast growing economy that attracted immigrants mainly from Europe and other Latin-American countries. Recurrent macroeconomic crisis and hard problems to sustain economic growth have changed the situation drastically. The country has generated poverty to levels never before seen. Perhaps because poverty was not among the most important problems in the past, the country did not have a developed and sophisticated monitoring system to assist poor households.

Poverty level in the country had a peak during the military government in the early 1980’s, but never went beyond 40%. A large heterogeneity in poverty incidence is observed, with some provinces historically and structurally with very high poverty levels (particularly those located in the northern part of the country).¹

The structural changes in the economy in the 1990s caused important changes in the labor market. The unemployment and underemployment increased to unprecedented levels: in the worst part of the decade (during the Tequila crisis) it climbed up to 20%. The poverty decreased in the early 1990’s, because price stability (due to “currency board”) improved at first the conditions of the population, which suffered the hyperinflation of 1989, but then it started to rise steadily and continued that way until 2002. In that year, the poverty levels exceeded, for the first time in history, the level of 50%. The 2001-2002 was a V-crisis, and by 2003, the economy was growing fast, with unprecedentedly favorable external conditions. With the strong economic growth, unemployment and poverty started a declining path, but the economic policy in these years was biased to promote consumption but not investment. The economic policies implemented did not favor productivity growth, export growth, or investment. The government went from 4 percent of the GDP fiscal surplus in 2003 to 4 percent of deficit by 2011 and extended to 8 percent by 2015. The surprising

¹ Poverty measured by income can be traced back to 1974 for Buenos Aires, which is not particularly one of the poorest regions of the country. To analyze early periods, the only source available are Census (the first in 1869), but with this information only it can be measured poverty by basic needs. Of the three standard ways of measuring poverty (by income (or expenditure), by basic needs or multifactor measures) Argentina only follows the first two. By income is measured with households surveys that provides information of the labor market for large urban areas, and by basic needs is compute for the entire country every 10 years based on the Census of Population and Housing.
The expected increase in poverty during a crisis is attributed to the lack of safety nets. In fact, safety nets were almost inexistent until 1995 when the “Plan Trabajar” was created, but this was a badly designed and implemented program covering a small share of the poor population.  

In the 1990s, when unemployment and poverty reached two digits, the national government started to implement large scale programs, such as Plan Trabajar (later replaced by Plan Jefes y Jefas). One of the most notable problems of these programs is the lack of developed institutional mechanisms to implement the programs. In particular, the country does not have a good system of statistics to measure living conditions. The only household survey implemented at the national level is the Encuesta Permanente de Hogares (EPH) which is designed to monitor the labor market but not living conditions. The EPH is administered in large urban areas, and does not cover small cities or rural areas such as Tandil, Azul and Olavarría, municipalities that have a clear different socioeconomic structure than large cities. In 1997 and 2001 the country implemented a Living Condition Survey (SIEMPRO) financed by the World Bank and the Inter-American Development Bank (IADB). This survey was supposed to be continued by the argentine government in 2006, and every 5 years. The government created a special unit to implement it, and allocated budget, but the survey was never administrated again. As a consequence, poverty continues to rise, with more programs designed to alleviate poverty, but no statistics to monitor and help targeting. Programs are not evaluated and neither there is coordination in the social programs across the different government levels.

The Community-Based Monitoring System (CBMS), promoted by the PEP Research Network, has been already implemented in several countries in Asia and Africa. In 2011, a group of researchers from the Universidad Nacional del Centro de la Provincia de Buenos Aires (UNICEN) proposed for the pilot implementation of the CBMS in Argentina recognizing it as an important tool that would help municipalities in Argentina to administer their existing programs. CBMS in Argentina started in 2011 with the cities of Tandil (province of Buenos Aires) and Urundel (province of Salta). A second phase of CBMS was implemented in additional sites in Argentina in 2014-2015 particularly covering Olavarría, and a second round of data collection in Tandil.

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2 “Plan Trabajar I” had 118,000 beneficiaries and was the first of many social plans to come. It consisted on a small benefit for unemployed workers that perform community service.
1.2. Local Government Structure

The basic structure of Argentina’s government (ruled by its 1853 Constitution and its Reform in 1994) is federal and republican. There are three levels of government: the national government, provincial government, and municipal government. The three levels are directly elected by the people. There are 24 provinces (in fact 23 provinces plus the autonomous city of Buenos Aires), and almost 1 thousand municipalities. Each level of government has its own responsibilities and duties, and each level collects taxes.

With decentralization, municipalities have a very important role administering the existing programs, including national and provincial programs as well as municipal initiatives. The national administration through the Ministerio de Desarrollo Social decentralized the implementation of many programs to the local governments (municipalities). On the other hand, municipalities do not have tools such as the community-based monitoring system (CBMS) that would enable them to monitor poverty or evaluate the impact of the programs.

In the case of the Municipality of Tandil, in order to better identify the needs of the poor and organize and administer its existing programs, through its Secretaria de Desarrollo Social, has created in 2006 Centros Comunitarios (community centers) and Centros de Salud (health care centers), which are self-administered organizations at the neighborhood level located in poor neighborhoods. These Centers are intended to take charge of organizing meetings to present and discuss reports for the municipality to help identify local needs and provide the services that would help resolve local problems. In the absence of more formal mechanism, the centers play a very important role, although they are working very informally and without a system to monitor poverty.

1.3. Review of Existing Monitoring Systems

The main institution in Argentina responsible for statistics is Instituto Nacional de Estadística y Censos – Statistics and Census National Institute (INDEC). It is the technical government agency responsible for the coordination and supervision of all public statistical activities taking place in the Argentine territory.

Argentina, as a federal country, has statistics offices or secretaries at the three levels of government, national, provincial and municipal. All these agencies are all integrated into and coordinated by the Sistema Estadístico Nacional - National Statistical System (SEN). In each of the 24 Argentine provinces, a Provincial Statistical Office (DPE, Dirección Provincial de Estadística) operates under the control of the respective provincial government. Each Provincial Statistical Office coordinates statistical activities in its respective province and takes active part in collecting, entering and processing information at that level.

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The INDEC coordinates the SEN operations under the principle of procedural, methodological and standards' centralization coupled with operative decentralization. It draws up the Annual Program of Statistics and Censuses and develops the methods and standards that will ensure the comparability of statistical information originated in different sources.

At municipal level, the rule is that there is no Statistical Office. There are some exceptions, although, and there is a renewed interest by statistics at the municipal level at the same time expenditure has been decentralized more in the last 20 years. Some municipalities have been creating Agencies or Secretaries; in fact there is a line of credit from the Interamerican Development Bank (IADB) financing this.

**Monitoring Poverty by Income Level**

Poverty is monitored in Argentina with: (i) EPH (Permanent Household Survey), twice a year or (ii) Census of Population and Housing (every 10 years).

The EPH is a stratified sampling survey administrated in the main urban areas of the country, representing almost 80% of population. It started as a punctual survey, but since 2003 has been improved to be a continuous survey: every quarter different fixed areas are surveyed per week (every area is surveyed a week per quarter, always in the same order). It has progressively incorporated new large and medium cities of the country covering 31 urban centers.

EPH is not designed to monitor poverty or living conditions, rather to monitor the labor market. With the income data collected through the EPH, the National Institute of Statistics (INDEC) produces a measure of poverty and extreme poverty as a headcount ratio below established line. The line takes into account demographic factors of the household (age and gender) but not economies of scales or other factors. The EPH is published twice a year, and micro data are available in the website of INDEC. The earliest survey was administrated in 1974 in the Great Buenos Aires (GBA) Region, which comprises Buenos Aires city and surrounding areas. In the 1980s and 1990s sequentially more cities were added, since middle 1990s it is representative for the entire urban areas of the country.

Poverty is measured in terms of the income of the families with reference to the CBT (Canasta Básica Total), which is the amount of money necessary to fulfill personal basic needs, and to the Canasta Básica Alimentaria (CBA), which is the amount of money necessary to fulfill a person's energy and protein needs. The population that does not reaches the CBT and CBA income is considered poor and extremely poor respectively.4

These income measures of poverty have the usual critics. In the case of Argentina, some of the criticisms on these measures are as follows:

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4 Technically what is computed is CBA as a basket of basic food. The Inverse of Engel converts CBA into CBT (this inverse relates total consumption to food consumption according to Consumption Surveys, which are administrated every 10 years).
• Since it is based on the consumption pattern of the median family, measure does not reflect the real situation for the poorest (consumption is overestimated).

• CBT is biased to the consumption pattern of large cities, and does not reflect the reality of middle size cities.

• Income measure from household survey only takes into account current income, therefore it is influenced by “income shocks”

• Current income is just labor monetary income. It does not take into account nonmonetary private income, such as consumption of self-production, fringe benefits provided by the employers, and imputed rents for owner-occupied accommodation. It does not include either a monetary measure of public transfers, neither for the income transfer nor for in-kind transfers (education subsidies, public health care, public housing, among others);

*Poverty by Unsatisfied Basic Needs*

Census of Population is administrated every 10 years since 1869 with some interruptions. Last Census was administrated in 2010. The Census is administrated by INDEC in the entire country. Micro data is not publicly available. The measure of poverty computed from the Census is Poverty by Unsatisfied Basic Needs (NBI poverty by its Spanish initials) which is based on five pillars: a person is considered poor if living in a household having: (1) more than three persons per room (Crowding); (2) living in a house made of irregular materials, or in rented rooms (housing); (3) not having an indoor flush toilet; (4) having a child between 6 and 12 years that is not attending to school (school attendance) or (5) having four or more persons per person working and a household head with 2 or less years of primary school (subsistence capacity). A person is poor if one of the conditions is met.

Census has the attractiveness of representing an accurate picture for the entire country. But, in the way the indicator is defined, it is not influenced by “income shocks”, and it is not very dynamic. It is an important contribution to measure poverty when it is combined with indicators related to income.

The main problem with this NBI index, like many, is that it is a mix of indicators without a clear purpose. Most of these indicators are inputs, rather than results, and some are proxies for income or consumption expenditures. The first two, crowding and housing conditions, are clearly related to household income, while having a flush toilet may be as well. Likewise, the fourth variable measures school attendance, but not achievement, and it is not clear whether the lack of school attendance is related to availability of services or not. Finally, having four or more persons per employed person, or a household head with only two years of primary education, is essentially a proxy for average household income, the presumption being that those with inferior educations and large households are spreading a small income over many people.
Correlation between the income and NBI measures is not perfect. For instance, in 1996 only one-third of the population which was poor by income was also poor by NBI. On the other hand, in the upper 60%, about 8% were deficient in terms of NBI.

**SIEMPRO**

The first attempt to create a national level monitoring system of living conditions was SIEMPRO (Sistema de Información, Monitoreo y Evaluación de Programas Sociales or in English System of Information, Monitoring and Evaluation of Social Programs). It was created in the middle 1990s by the CNCPS (Consejo Nacional de Coordinación de Políticas Sociales – National Council of coordination of social policies, which reports to the President). It aims to produce microeconomic level information for policy formulation and impact evaluation. It was also responsible for collecting administrative information on social programs in place, for monitoring the degree of progress in meeting the goals set in these programs, and for assessing the degree of correspondence between expected and actual impact achieved. SIEMPRO with the financing and the advice of the World Bank designed and implemented a Living Condition Survey, similar to others applied in Latin-America in the same period. The first survey was administrated in 1997 and the second in 2001 with the financing help of the World Bank and IADB. It was expected another survey in 2006, this time financed by the Argentine government, but with the economic crisis of 2002 SIEMPRO team was dismantled, and the 2006 survey was never implemented.

**Non-Governmental Systems**

Poverty has gained importance in the political and academic agenda. The official figures between 2007 and 2015 were not credible. As inflation was growing since 2007 the federal government intervened INDEC, firing many prestigious professionals. The Price Index was altered and the official inflation did not reflect the real inflation. As the CBT and CBA are based on prices of this Index, the poverty line was underestimated, and so the official poverty head count ratio was significantly lower than the real poverty. Many private institutions started collecting their own prices and several alternative price index were used, creating uncertainty regarding the true inflation. Most prominently the University UCA started elaborating a very credible poverty head count ratio that was diverging from the official figures.

From 2004 to 2015 the Kirchnerismo was in power (first president was Néstor, and after him twice was President Cristina, his wife). In this period the quality of the institution deteriorated and most notable the official statistics, as mentioned. The new government of Macri elaborated a new price index and poverty measures following bet international practices. The new figures showed a completely different reality. In 2019 Macri lost the re-election and the Kirchnerismo take place again, but at the moment the INDEC has not been intervened and the official figures continue to be credible, showing a steep deterioration after years of stagnation.
In Argentina there are several Institutes and Research Centers from the private sector, NGO and private and public university analyzing poverty issues in Argentina. CEDLAS from UNLP (Universidad Nacional de La Plata) is one of the most active and prolific research centers studying poverty and income inequality. Universidad Católica Argentina (UCA)– Argentine Catholic University elaborates the most credible figures of poverty rates based on their own surveys through the Programa Observatorio de la Deuda Social (Social Debt Observatory program), created in 2002. The Social Debt Observatory Program of the UCA implements a national survey yearly - as from 2004 - which mainly include indicators of human development and social integration (Argentine Social Debt Survey) on homes, towns and children living in urban areas of the country. The poverty rate computed by UCA follows the same official methodology. This information is very useful given the misfortunes of the official statistics, but is not really a monitoring system.

**Sub-national Government Monitoring System**

Each of the 24 provinces of Argentina has, with different degree of sophistication, programs and institutions collecting information to monitor poverty.

Statistical Offices collaborates with INDEC to produce the EPH, but also they have their own surveys, which usually are targeted to cities which are not covered or not similar to the cities included in EPH. In general these studies are surveys following a stratified sampling technique. Sample size usually is rather small and there is no continuity. Social Census is not common.

**Case of Selected Localities**

**Buenos Aires**

Buenos Aires Province, for instance (the most populated province in the country) has the HLS (Household and Labor Survey). This survey follows the methodology of EPH and is administrated by the Direction of Provincial Statistics (DPE). It is administrated to medium/small cities not covered by EPH.

In addition to this survey, the Provincial Secretary of Culture and Education, carries out three times a year, and under the responsibility of every school authority, a survey (at the beginning, during and at the end of the school year) in every school. It also prepares (together with Dirección de Información Estadística – Agency of statistic information) a map of educational establishments, relating them to social indicators geographically.

The Ministry of Labor of Buenos Aires Province performs the EIMTM (Encuesta de Indicadores del Mercado de Trabajo en los Municipios – Labor Market of Municipalities Indicators Survey), that consists of agreements between the province government and municipalities to survey the labor market conditions of the last ones.
At Municipal level there are some attempts to organize the data and create poverty maps, but this so far has been done with Census Data (available only at the censal unit, around 400 household unit) or administrative data (register of beneficiaries). The municipality of Tandil, for instance, has been working together with the University UNICEN to construct indicators and mapping for several years.

Olavarria municipality is currently doing a similar work, integrating information of different administrative databases and trying to construct indicators at the household level.

The Municipality of Tandil -in order to improve governance, to better identify the needs of the poor, to organize and administrate the existing programs, and to get the community involved- divided the city in 14 geographical regions or zones. The division was made with the help of the University UNICEN (through the Institute of Geography) and based on socioeconomic characteristics of the population. Each zone is planned to have a Community Center, which is the link between the Municipality and the community. Currently there are 10 Community Centers working of the 14 originally proposed (the four still not implemented are in the richest areas of the city).

The creation of the geographical zones and the implementation of the Community Centers have been an initiative of the Municipality implemented with the help of the Institute of Geography of the University (UNICEN). The interaction between both has been close since 2004. Initially the Institute only created the division in 14 zones. Soon the Municipality understood the limitations of the division. At the beginning resources were distributed among CCs, but without a clear idea of the local needs. For instance the gas tubes that municipality distributes to poor households without access to the natural gas network were initially equally distributed among CCs. The Institute of Geography then gathered georeferenced information based on several variables (such as public service coverage, home fiscal valuations, Census data, etc.). This allowed the creation of a map, at census radius (which covers around 250-300 households) with the local needs and an index of Vulnerability. The Municipality started using these maps to allocate resources.

At this point it is necessary to make clear that in general, Buenos Aires province’s municipalities tend to use more advanced measures of poverty than the rest of the country, where, apart from the National Census of Population and Housing and the CHS (in inland’s major cities), no other measure is performed (like the case of Urundel, Salta).

**Salta**

The provincial government of Salta, through its Bureau of Statistics (in Spanish “Dirección General de Estadísticas del Gobierno de la Provincia de Salta” - DGE), implemented a geo-referenced map for its capital city (also named Salta) to identify the poor neighborhoods and their needs as Tandil did. Salta, however, has gone a step forward than Tandil and they implemented what they called a “Social Census”. The Social Census was created by the DGE to measure poverty and identify the needs of the poor, in order to address social assistance correctly. The Social Census combines the methodology of a Census with questions in the spirit of a SIEMPRO Living Condition Survey. It
consisted of a questionnaire of 82 questions and was implemented by the professional staff of the DGE in the poorest neighborhoods of the city of Salta. The results of the census were used to perform the named geo-referenced map.

The Social Census of Salta has been the attempt which is closest to CBMS in terms of collecting indicators, but very different in spirit. In Salta the Census was performed by professionals, without interaction with neighbors. It was costly compared to CBMS, what means it cannot be implemented very often. In addition, to apply this methodology in smaller cities and rural areas might prove to be extremely costly. This was one of the reasons, according to the Provincial Government of Salta, to explain their interest in CBMS. They think CBMS strategy can be an excellent tool to collect information in the rural municipalities, and at the same time to get the community involved, to increase human capital and empowerment in the local governments, and to instrument a formal mechanism to improve the interaction between DGE and municipalities.

The review of the aforementioned monitoring systems points out to the following key issues:

- The existing systems to monitor poverty are only partially effective, because poverty by income level and by NBI are incomplete ways to measure it.

- Efforts to survey poverty in its many dimensions had been only successful in very specific areas. There is no such system, that monitors the different dimensions of poverty, in place at the national scale, and there is no certainty about its future in the country.

- There is no system implemented yet to measure the effectiveness of social programs, nor objective and precise criteria to aim them.

Critics of social plans in the country say that many of these are handed over with political criteria instead of an uncovered basic need criteria (in Latin America, it is called “clientelism”). Programs overlap and many people receive simultaneously help from different plans. There is no system to identify potential beneficiaries, and neither there is control or systematic impact evaluation of the programs.

The experience of Argentina with SIEMPRO shows that large scale surveys have problems. First, it is a very costly mechanism that ultimately, due to the economic problems, was discontinued in Argentina. Second, it was administrated at national level without the participation of the local institutions. This does not help to develop local capacity. And third, the information was not provided at the local level, Municipalities did not have a local level database, and therefore it is not useful to assess the local needs, and to plan, monitor and evaluate the development of the projects. As a consequence, Living Condition Surveys such as SIEMPRO are useful for national level research, but not for local level research or for the local level implementation of the programs.
2. CBMS Design

2.1. Key Features of CBMS in Argentina

The pilot implementation of the CBMS in Argentina was done jointly by a group of local research team in the Institute of Economics of UNICEN and the Municipality of Tandil.

The CBMS data collection tools were adapted to the local needs in Argentina, taking the cases of Tandil and Urundel in 2011, and additionally of Olavarría in 2014. The CBMS was also used as a platform to conduct a rider survey to examine labor conditions among the youth.

As described by Reyes and Due (2009), the main objective of CBMS is to provide useful and dynamic microdata to characterize living conditions in the communities and help government to design better public policies. CBMS aims to validate the knowledge of the community through accurate and reliable information and offer localities the tools to do their own projects. It is helpful, for instance, to determine the nature and extent of social development; to formulate policies and appropriate programs; to identify eligible beneficiaries for targeted programs; and to analyze the impact of public policies. CBMS in Argentina is intended to be an important tool that would help municipalities in the country to administer their existing programs given the absence of a system that monitors poverty in many dimensions.

2.2. Adjustment of CBMS Methodology to Argentina's Context

The implementation of CBMS in Argentina followed closely the CBMS methodology proposed by Reyes and Due (2009). In particular, a CBMS census was undertaken in two cities in Argentina, Urundel and Tandil. In the first case, it was a census to the entire city, in the second, data collection was conducted in a selected area which represents approximately 10% of the total population of the city. The questionnaires were adapted to the reality of each city. In particular, Urundel is a rural city in one of the poorest provinces of Argentina, with aborigine roots and an income per capita which is almost one fourth of the national average. In this case, a module in the questionnaire was developed to obtain information about agriculture production and ethnicity. On the other hand, Tandil is a middle income and middle size city, with an income per capita which is 35% above the national average. As an urban city, the problems are different. In the case of Tandil, information about agriculture production and aborigine culture modules were not included in the data collection instrument, and instead included a module to get data on crime incidence.

2.2.1. Core Poverty Indicators

A core set of poverty indicators to be monitored in Argentina through CBMS implementation was initially identified and pilot tested by Auguste, S. et al. (2011). These household and individual level
indicators refer to different dimensions of poverty such as motherhood, health, hunger, water and sanitation, shelter, and education.

The sustained interest in the female heads of households comes from its growing weight in the population due to the crisis of the nuclear complete family model and to the fact that their households are considered vulnerable (Geldstein, 1997). In the indicators, a young mother is defined as those females that have had their first child before being 21 years old. It is important to point out that young mothers are highly correlated with poverty and social exclusion in Argentina.

Three measures of hunger were captured: households that suffer privacy of food at least once a month, more than 5 times and more than 15 times.

**Table 1: CBMS Core Indicators of Poverty, Argentina, 2011**

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motherhood</td>
<td>Proportion of female headed households</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with young mothers</td>
</tr>
<tr>
<td></td>
<td>Proportion of young mothers</td>
</tr>
<tr>
<td>Health</td>
<td>Proportion of child deaths (0-5 years old)</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy-related causes</td>
</tr>
<tr>
<td>Hunger</td>
<td>Proportion of households whose members experienced hunger and have nothing to eat in the last 30 days</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households without access to safe water</td>
</tr>
<tr>
<td></td>
<td>Proportion of households without access to sanitary toilet facilities</td>
</tr>
<tr>
<td>Shelter</td>
<td>Proportion of households living in makeshift housing</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who are squatters</td>
</tr>
<tr>
<td>Education</td>
<td>Proportion of children 6-11 years old not in elementary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 12-17 years old not in elementary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children who are repeaters</td>
</tr>
<tr>
<td></td>
<td>Proportion of youth aged 15-24 years who are illiterate (cannot read and write)</td>
</tr>
<tr>
<td>Unemployment and Social Assistance</td>
<td>Proportion of people in the labor force who are unemployed</td>
</tr>
<tr>
<td></td>
<td>Proportion of households that receive social assistance</td>
</tr>
</tbody>
</table>
2.3. Data Collection

2.3.1. Data Collection Instruments

The pilot phase of implementation of CBMS in Argentina in 2011 adopted the paper-based approach in data collection. Data was collected using two different questionnaires given characteristics of Tandil and Urundel. The first questionnaire, pilot tested in Urundel, includes modules on agriculture production and on aborigine culture. The second questionnaire, developed for Tandil, does not include these two modules but instead includes questions on crime incidence. Both questionnaires, on the other hand, collect a set of common indicators.

The local governments of Urundel and Tandil were interested in asking specific questions about the local public policies in the neighborhood, what was adapted to the programs and needs of each city. In the case of Tandil, the municipal authorities required detailed information about the lots and population living in the area. The Northern part of Tandil was selected as a pilot site, because it is a fast growing and a low income area. The selection of the CBMS census area and allocation of data enumerators were guided by information about the site provided by the focal persons from the municipality.

In 2014, the implementation of CBMS in Olavarria adopted a tablet system for data collection through the use of the CBMS Accelerated Poverty Profiling tools.

In Tandil, the Institute of Economics generated public awareness of the census by putting up posters and distributing leaflets in different places such as neighborhood community centers, schools, bakeries, kiosks, local minimarkets, residences, and several areas within Universidad Barrial, a small branch of the university in Villa Aguirre that provides training in different areas to the community. For its part, the Municipality advertised through radio and the city’s major newspapers.

Promoting the census was easier in Urundel because of its smaller population, with local government support coming from The Secretariat of Sports and Culture of the municipality of Urundel promoted it with mobile advertisement (through cars with speakers). In addition, we produced an advertising spot that was aired on the local radio station.

In Tandil, the census was launched through a formal ceremony held in the Municipal Government House with the participation of the Mayor, Secretary of Government, Director of Social Development, Dean of the Faculty of Economics, and member of the Institute of Economics and Project Coordinator. The census was completed with a total of almost 3,000 units being visited. Data was validated continuously. Supervisors met with the Institute team to give progress updates and resolve specific issues.

In Urundel, the survey was carried out in two stages with the help of the local government. All communities were covered during the census period, with rejections, absences, and other non-responses also being registered. The supervising team and enumerators revisited the areas to complete the census during the second stage of the census.
2.3.2. Identification and Training of Local Enumerators and Supervisors

The main requirement for the enumerators engaged in data collection is that they had to be residents of the census areas.

In Urundel, a pre-census was undertaken wherein 633 inhabited lots were found that were divided into nine “barrios” or neighborhoods. This information was useful for allocating enumerators in the census area. In total, 12 enumerators, two supervisors, and three data encoders were hired from the locals in Urundel.

On the other hand, in the case of Tandil, a public call was posted for people who were interested in participating as enumerators in the area. Members of various organizations in the neighborhood, local churches, health centers, and the community, in particular, were contacted by the municipality. Several meetings were held by representatives of the Municipality and of the Institute of Economics in order to promote the census to and select enumerators from locals who were interested.

The local research team trained the selected enumerators and supervisors and provided them a set of manuals (enumerator/supervisor manuals) and questionnaires to review. Initial trainings involved interviewing a fellow enumerator while the last training focused on conducting pre-test surveys, interviewing select locals. Among postulants, we selected as supervisors those with experience in managing people or groups, surveys, and accountable for working.

The selected enumerators and supervisors (40 enumerators and 8 supervisors) were given credentials, cartography, forms, pencils, and rubbers during the final meeting. Majority of the enumerators were selected to work part time and compromised to do it for an entire month.

During the implementation of census, communication with the municipality was very fluid in both cases. The Institute of Economics reported to the Municipality at least once a week on its progress, providing details such as the number of surveys made by each enumerator, their respective areas, and the number of nonresponses and absences, among others.

Despite some of the issues encountered, the team felt that the process was successful and engendered active local government participation.

2.3.3. Study Area and Field Operations

The CBMS Pilot Project in Argentina was implemented by the Institute of Economics of the Universidad Nacional del Centro de Buenos Aires (hereafter the Institute) in two different places: Urundel, a rural town in one of the poorest provinces (Salta), and Tandil, a middle income urban city in one of the richest provinces (Buenos Aires).

The selection of the cities was intentional, to capture the heterogeneity of Argentina, and have a rich pilot experiment. The Municipality of Tandil was chosen because of the university's long
history of collaboration with the Municipal Government of Tandil. Since 2004, the University has been helping the Social Development Secretary implement a geo-referenced map (poverty map). There is a very high probability of success due to previous work and the interest of the government.

The local research team identified the province of Salta and its rural municipalities as another ideal place to implement a Pilot CBMS. Adding a rural area of Salta would increase exposure of the CBMS census and would show the possibility of successfully implementing CBMS in different environments. Local authorities in both areas were willing to collaborate with the research team for the pilot census. In Tandil, the city where the University is located, the pilot CBMS was implemented by the Institute of Economics with the help of the Municipality of Tandil.

First Round

The CBMS Pilot in Argentina was implemented in two very different places: Urundel, a rural town in one of the poorest provinces, and Tandil, a middle income urban city. These two places capture the heterogeneity of Argentina. We adapt the questionnaire to the reality of the two cities. The Census was implemented in 2011, in both cases with the help and collaboration of the local authorities (municipal government). Enumerators were selected in the community.

The selection of the two places was strategic to capture the heterogeneity of Argentina. The municipal government was contacted directly, as the minor unit of government in Argentina, to be as close as possible to the community.

Regarding the heterogeneity, Argentina has large variation in living condition across region and very high income inequality. The most salient characteristics of this country are:

- Very Urban: 90% of the population lives in urban areas (town or cities of at least 5000 people), and almost 75% lives in cities of more than 100,000 inhabitants.
- Low Density: population density is 14 individuals by squared kilometers on average, but in some regions of the Patagonia (southern part of the country) the density is as low as 1 individual per squared kilometer.
- Economic Concentration: Buenos Aires city and the surrounding neighborhoods (the Great Buenos Aires (GBA) Region) has almost one third of the total population, and it produces almost 60% of total GDP.
- High income inequality and regional inequality. Large and relatively rich urban areas, such as GBA or Rosario, have entire neighborhoods (slums or favelas) of very poor people. On the other hand, half of the country, what sometimes is called the Great North, is poor and more rural.
- Rural areas are not poor. Contrary to what happens in many other countries, rural areas are mostly rich areas, of high technology agricultural production, the exception is the Northern...
part of the country (Auguste, 2007).

The northern part (known as Norte Grande) is the poorest and there are several communities living in self-subsistence. We selected the province of Salta first because it belongs to Norte Grande and second because we have already worked with its provincial government. This province has a large city called also Salta, and several small towns, most of them rural, many of them with high incidence of aborigine population. After evaluating several municipalities in the province and establishing contact with authorities we selected Urundel (provincial government helped us in the selection).

In the case of Tandil, the selection was done basically because the University to which the Institute belongs to is located in this city, and because the University has a history of collaboration with municipal authorities.

**Tandil, Province of Buenos Aires**

Tandil is a city of 150,000 inhabitants located in the middle of the province of Buenos Aires, 365 km south from Buenos Aires city, and Urundel a village of approximately 3,000 inhabitants, located in the of the province of Salta, 200 km away from the city of Salta (capital of the province with the same name), and almost 2,000 km away from Tandil. Urundel has in the 2001 Census less than 8 inhabitants per square kilometer, Tandil 22.

In terms of regions, Tandil belongs to Region Pampeana, which is a plain with very fertile soil (Pampas, from Quechua, an aborigen language, meaning "plain"). The Pampas are vast plains covering the provinces of Buenos Aires, La Pampa, Santa Fe, Entre Ríos and Córdoba, and only interrupted by the Ventania and Tandilia hills (with average height of 1,300 meters and 500 meters respectively). This region produces more than 70% of the Argentine GDP.

GDP per capita in Tandil is estimated in USD 11,000 per capita. It has been growing well above the country average in the 2000s, with the development of new economic sectors (such as software industry) and the attractiveness of its good quality of life. The economic boom has pushed urban land prices up, particularly in the downtown area, what has segmented the city in a similar fashion as the larger cities of the country, expelling the medium and low income households to the periphery. It is estimated than in the north part of the city, called Tandil Norte (Northern Tandil) - developed outside the original urban zone currently has 30,000 inhabitants. This part of the city is on the other side of the main route to Tandil (Route 226). We select this northern part for our pilot, which includes 3 of the 23 barrios (or neighborhoods), of Tandil: 1) San Cayetano, 2) Villa Aguirre and 3) Palermo. This area has approximately 10% of the total population of Tandil, and has large incidence of new migrant from nearby cities and other provinces that came to the city searching for a job.
Urundel, Province of Salta

Salta belongs to the Northwest Region (NOA), in the Andean mountains. Salta has been growing fast, favored by oil production, tourism, and agriculture. It is, however, one of the poorest provinces in the country. The first measure of poverty was obtained in the first national Census of 1869 (Basic Unsatisfied Needs Index) and Salta ranked as the fourth poorest province. In the 2001 Census, Salta ranked as the third poorest province.

Urundel is an area of “foothill forests”. The main economic activity is agriculture, historically dominated by sugar, but currently more diversified. It has a conglomerate of farms doing premiere horticultural crops and export fruits such as: orange, grapefruit, lemon, mango, papaya, bananas, green peppers, tomatoes, watermelon, pumpkin, melon, strawberry, sweet potato, cassava, and coffee. There is also wood production from the forests. In terms of aborigine groups, there are currently two “Guaraní” native communities living in the town: the “Iyiguapentirami” and the “Avaguaraní”. They are not segregated in a particular neighborhood but rather distributed along the city.

Second Round

The second wave of CBMS was implemented in 2014-2015. In 2014, several small towns of Olavarría were censed, and 2015 Tandil again. The design and implementation of the CBMS was done jointly by the Institute of Economics and the municipality of Tandil. The questionnaire was adapted to the local needs from CBMS Olavarría 2014 and it also included a rider questionnaire for the youth to study labor conditions. The funding was provided by PEP and the CBMS team provided technical support. The census was conducted in 2015 (with a total of 14 enumerators).

2.4. Data Processing

In Tandil, data encoders were selected and trained independently of enumerators and supervisors, and the training was done in the university campus. We had a different profile for hiring encoders; they should at least have secondary education and experience in computing. Most of these positions were filled by university students who live in the neighborhood, and they were given the option to enter data either in the university computer lab or at home.

In Urundel, encoders were selected from the pool of people who applied to do the census since there was just one call for all three project positions and individuals were categorized according to their profile. The data entry training was done with equipment facilitated by the city's Secretary of Sports and Culture. For the data entry, Delta and the Institute collaborated on programming software which helped avoid mistakes in the data entering process.
In general, there were no major problems with the data encoding and processing, but the data consolidation process took longer than expected, as the team cleaned the database and processed the results. The team checked every variable for inconsistencies and tried to combine categories in the open-ended questions. After the cleaning and coding was completed, data was consolidated into two main databases: household level and individual level (one for each of the two cities surveyed).

A member of the local research team had previous expertise on geographical information systems (GIS) and was in charge of leading this process and training the rest of the members.

Figure 1: Proportion of households without access to sanitary toilet facilities, Municipality of Tandil

2.5. Data Validation

In this phase, some of the remarks made by the municipal authorities and local leaders were very useful to make a final consolidation of the data. The main objective of the meeting was to get feedback on the census results, discuss the objections or doubts from the participants on the analysis of the census results with reference to the data they had collected before and with what they observe every day in the neighborhood. During the activity, participants were also asked to verify what some of the results meant and about the interpretation of some particular facts.

2.6. Database Management

The databases and a summary of the results were handed to the municipal government and the community centers in the neighborhoods of the CBMS sites.
3. Uses of Data

The main local stakeholders were the municipalities. They have planned to use CBMS in multiple ways, but an important demand for them was to identify needs, particularly in infrastructure, housing, education and social assistance, the most important programs where municipalities have some responsibility. A potential use of the data is to justify policy interventions which are responsibility of provincial and national government, but where municipalities can provide identification. CBMS is a very powerful instrument to analyze and better design public policies.

Data generated from the implementation of CBMS in the pilot areas in Tandil and Urundel have been used to prepare a community poverty monitoring report of the municipalities. The CBMS data showed in the report pointed out the needs by the people in the municipalities. For instance, results in Tandil raised problems relating to lack of basic infrastructure i.e. water and sewerage services and electricity, paved streets, and safety. CBMS census results in Urundel, on the other hand, pointed out safety, health, and education as top problem areas in the locality.

CBMS data was also used to examine the factors that affect gender gaps in entrepreneurship (Auguste, S. & Bricker, A., 2016). In particular, the implementation of CBMS in the study sites generated the required data on youth entrepreneurship i.e. exposure and personality which helped explain entrepreneurial decisions. CBMS also generated the needed data on previous experiences with entrepreneurship which allowed the examination of success in entrepreneurship which is a less explored topic in most related studies.

4. Final Design of CBMS and Institutionalization of CBMS in Argentina

For the Institute of Economics (IE), the pilot CBMS initiative in the country turned out to be a major source of new capabilities and knowledge. While the local research team has experienced more difficulties than it expected, they were enthusiastic about repeating the experience being able to put in practice the new learning for implementing the CBMS methodology. In fact, following the pilot test in Tandil and Urundel, the municipality of Olavarría (adjacent to the area belonging to Tandil) has established contact with the IE to implement CBMS in a small town in their area (Sierra Chica, with more than 3,000 inhabitants) and a large company expressed interest to finance the data collection in the village where it is located.

Expanding and institutionalizing CBMS in Argentina would not be an easy task currently. Since 2007 the National Statistic Office is intervened by the national government and the production of statistics has been questioned by many institutions and professionals. Official statistics in Argentina lack of credibility. There is no hope to find support from the national government, which given the financial structure of the government in Argentina, is the main stakeholder.

On the other hand, the lack of reliable statistics has created an increasing interest for the production of statistics at different government levels. We think the most possible way to spread
CBMS is convincing some provincial government, who regularly produces some statistics, although they have limited resources. Municipal governments might be very interested in implementing CBMS, being the main challenge the lack of financial resources. Since the pilot has been a low scale project, it seems that a bottom-up dissemination process should be carried out. Therefore, the publicity of its results and the conviction of communities’ authorities that is a useful tool are crucial. The main way of expansion of CBMS is its success at a small scale.

If the promotion is successful, many municipalities would be interested and they could ideally put some kind of pressure to provincial governments for participating in the experience.

Finally, in small scale censuses, private companies can provide resources as part of their social responsibility programs, especially companies that have a hegemonic presence in particular neighborhoods, towns and villages.

In the case of the provincial and national government, the possibilities of institutionalization are limited. The provincial governments in general are suffering of an acute deficit in their budgets that make the possibility of implementing a CBMS bounded. Besides, historically, the state level that almost always took the initiative in gathering data through different statistics was the national one.

The national government implements a general census every ten years and a permanent income based survey (EPH), with a limited dimension account of poverty and human welfare. Given the national policy of taking decisions in an unorthodox way, without paying much attention to statistical data, the general consensus that many metrics carried out by the national institute of statistics lost quality and credibility and the discontinuation of SIEMPRO lead to think that the possibility of implementing a CBMS at a national level is very low.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

Bolivia is still one of the poorest countries in Latin America, with 42% of the population living in poverty, about 20% in extreme poverty, and an income per capita of 2.47 dollars, still far from the average levels of the region. However, during the last decade, per capita incomes were growing at rates above 3% per year associated with a favorable economic environment related to higher prices of commodities (e.g. gas) and mining, among others.

The government recognizes that poverty and inequality are still severe problems and, in fact, established the eradication of extreme poverty by 2025 as the most important goal in the agenda of the Bolivian State.

Municipal governments have become increasingly important in the fight against poverty reduction through the Autonomy and Decentralization Law passed in 2010. This law defines and describes the duties and accountabilities of municipalities, indigenous territories, and regions with legislative and executive powers (particularly, in the field of economic, productive, and social development as well as in the collection of tax and other financial resources).

Since the middle of nineties, municipal data were generated in response to the information needs as municipalities became responsible for the management of basic social services at the local level. The Bolivian Poverty Reduction Strategy in 2001 identified the need to establish national systems for monitoring poverty reduction and municipal data in order to identify priority areas for implementation of interventions.

Like most developing countries, the lack of information limits public management and planning of development programs in Bolivia. The last Bolivian population census in November 2012, for instance, contains information on access to housing and basic services (water, sanitation, electricity, and communications). Data related to education, health, and welfare of households is very limited.

Access to data and maps is still insufficient even after nearly two years since the last Census of Population and Housing; hence, different local entities are uncertain about the demographic and socio-economic characteristics of the municipalities.

In 2012, the Santa Cruz Governor created the Instituto Cruceño de Estadistica (ICE) in order to improve departmental statistics and promote local statistics. ICE developed the first strategic plan that includes generating three sets of data:

1. Local information on changes in socio-economic conditions

2. Local information on global and idiosyncratic risks and formal and informal mechanisms of
protection

3. Local information on changes in prices, particularly in agricultural products

**CBMS in Bolivia**

The Community-Based Monitoring System, presented as Community-i in Bolivia conducted a pilot test in Concepcion, Santa Cruz in 2013. Community-i started as a response to the problem of scarce information available, at the local level, on key social indicators related to issues of great importance such as poverty. The system was well-received by the public primarily because of the need for information to be used in designing public policies and because of the use of innovative technology in conducting the interviews. The change in local authorities, however, stopped the course of the project and the system was not established.

Looking for the opportunity to establish the system in Bolivia, the project is carried out for the second time in the town of Vallegrande, Santa Cruz. Taking into consideration the previous CBMS experience, the data collection instruments were updated and protocols were created to improve field operations and the formation of the database. The objectives of the second implementation are to:

- strengthen local governance and management through the generation and use of accessible and pertinent data in order to address the lack of disaggregated data at the local level
- contribute to local development planning through specialized information that allows assessment of people’s welfare and social needs as well as easier impact evaluation and monitoring; and
- implement the project through the use of new technology and techniques to capture information needed by the locality

**1.2. Local Government Structure**

The importance of statistics information as a basic tool for planning and monitoring is highlighted in the following legislations in Bolivia:

a) The Political Constitution of the Plurinational State (reformulated in 2008)


   d) Supreme Decree 19758, Creation of Economic Policy Analysis Unity (1983)
The constitution of Bolivia, the Constitución Política del Estado (CPE), was promulgated in 2009. It defines the foundations, rights, and duties of the state and mentions also the responsibilities (including the generation of local statistics, in particular) which have been passed on to sub-national governments (departments and municipalities) and establishes the presence of Autonomous Territorial Entities (ATE) which are mandated by the Law of Autonomy and Decentralization to provide services and promote economic development and social welfare.

Despite the institutional changes that created the new constitution, however, the guidelines on the local statistics still do not fit in to the structure of the state. The Law of the National System of Statistical Information, which was established in 1976, looked into the creation of an integrated system for statistical activity, but the system never applied effectively.

The formation of the Unidad de Análisis de Políticas Sociales y Económicas (UDAPE) or the Economic Policy Analysis Unit in 1983 sought to establish a link between information and politics, leaving both the National Statistical Institute (NSI) and UDAPE to work alongside the Ministry of Planning.

Under the autonomous regime, Bolivian municipalities and departmental governments increasingly demand information for local development planning. The department of Santa Cruz was the first to take an important step to improve local planning, with a Departmental Law. The Assembly decided to establish the Instituto Cruceño de Estadística in order to construct the Departmental System of Statistical Information.

### 1.3. Review of Existing Monitoring Systems

The monitoring and evaluation systems in Bolivia are guided by the National Plan to Development and the National Planning System. The Unidad de Análisis de Políticas Sociales y Económicas (UDAPE) is responsible for monitoring major national policies while the Instituto Nacional de Estadísticas (INE) serves as data collector from government institutions and units that provide sectoral information through administrative records (health, education, water, etc.).

Central level poverty monitoring systems have been worked through UDAPE. The low allocation of technical and financial resources, however, led poverty systems to focus on collecting data at the national level only, leaving communities with little to no data on locally needed indicators.

The National Statistical Institute (NSI) annually conducted household surveys that provide inputs for tracking and monitoring the Millennium Development Goals¹ as well as upgrade the basic social indicators. The maximum scope of the survey comes to estimate indicators by area (urban and rural), except in 2011 and 2012 when the data was collected down to the departmental and area level.

Even though the National Population and Housing Census has complete coverage of the population, it presents limited data in order to build poverty measurements. All Bolivian censuses (including that

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¹ In September 2000, 189 countries members of the General Assembly of the United Nations committed by signing the Millennium Declaration, reach until 2015 the Millennium Development Goals (MDGs).
of 2012) have limited information on socio-demographic variables and access to basic services, resulting in inability to measure overall welfare at the municipal level.

One of the difficulties faced by local institutions is the use of consulting services to acquire information from municipal governments. Due to lack of funds, they often miss opportunities to request for information that could be locally processed.

The autonomic framework has the purpose to strengthen Autonomous Territorial Entities through the definition of exclusive, concurrent, and shared promotion of local public policy skills; however, they face new challenges and complexity in the design of programs that require the use of local and departmental information.

The Instituto Cruceño de Estadística (ICE) aims to develop systems of monitoring and evaluation at the departmental level and is challenged to face a high demand of statistics information.

2. CBMS Design

2.1. Key Features of CBMS in Bolivia

The implementation of CBMS in Bolivia included a process of planning, testing, data collection, processing, validation, compilation, information management, and dissemination.

It aims to:

- Strengthen local governance and management through the generation and use of accessible and pertinent data in order to fill the need of information of local unities and social organizations.

- Contribute to local development planning through specialized information that allows assessment of people's welfare and social needs as well as easier impact evaluation and monitoring.

- Develop a framework for the design, collection and processing of the information of communities and selected localities. Develop and implement activities with the participation and close coordination with local authorities for the raising, recruitment and training of the same community staff.

- Collect data on welfare, risk, and vulnerability at the local level.

- Design an information platform for the use of the community, authorities, social organizations, academic institutions, and other groups.

- Generate a research agenda about multidimensional poverty changes, incidence of risks and measurement of idiosyncratic and aggregated risks, and the vulnerability and poverty profile.
in the community.

- Generate basic community indicators for poverty profiles and thematic maps of the community to identify policy needs.

The implementation of CBMS in Vallegrande, raised the importance of participation of certain local actors in the process. Among these are:

- Local actors: Municipal Autonomous Government of Concepcion, executives of the municipality and the City Council; social, neighborhood organizations and corporate organizations.
- Media of the town, private entities and others, because they are policies makers and promoters of welfare of the community.
- Departmental Actors: ICE, Departmental Autonomous Government of Santa Cruz executives,
- Departmental Assembly, Association of Municipalities of Santa Cruz. District of Education. Universities, media and social organizations in the department. OTB (local organizations) and electric cooperative because they are sellers and auditors of community development.
- Non-Governmental Organizations working and supporting with technical assistance of the department, for being people recognized as promoters characters seeking the welfare of the community offering their support.
- National, governmental and non-governmental actors, because they are interested in development of the community as well as the daily living of its inhabitants.
- Academic Audience, because they are agents of innovation at the search of quality information and its applications.

2.2. Adjustment of CBMS Methodology to Bolivia’s Context

2.2.1. Core Poverty Indicators

<table>
<thead>
<tr>
<th>Table 1: CBMS Core Poverty Indicators, Bolivia, 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions of Poverty</strong></td>
</tr>
<tr>
<td>Education</td>
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<tr>
<td>Social Security</td>
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<td></td>
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</tbody>
</table>
2.3. Data Collection

2.3.1. Data Collection Instruments

Data collection adopted Computer-Assisted Personal Interviewing (CAPI) approach which entailed the use of tablet devices with the following specifications:

- **Brand:** Samsung
- **Type:** Tablet
- **Dimension:** 7 inch
- **Model:** galaxy tab 3
- **Operating System:** Android 4.1
- **Other Attributes:** GPS, 3G

<table>
<thead>
<tr>
<th>Detail</th>
<th>Object</th>
<th>Number</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBMS 1 - Concepción</td>
<td>Tablets</td>
<td>20</td>
<td>S3 - Android</td>
</tr>
<tr>
<td>CBMS 2 - Vallegrande</td>
<td>Tablets</td>
<td>40</td>
<td>S3 y S4 - Android</td>
</tr>
<tr>
<td>CBMS1 data entry program</td>
<td>System</td>
<td>1</td>
<td>Developed in ODK</td>
</tr>
<tr>
<td>CBMS2 data entry program</td>
<td>System</td>
<td>1</td>
<td>Developed in CSEntry</td>
</tr>
</tbody>
</table>

Data is collected using the following tools:

- Cartographic and registration updating manuals
- Information and processing tools for training of staff
- Displacements in the field, forms to travel of in the zone
Field instruments (maps, forms, tablets, control systems)

- Questionnaires
- Data entry system (application developed for tablets)

A small-scale pilot test allowed the local research team to evaluate and adjust strategies and instruments to be used in the actual data collection process. The test was conducted in three blocks in La Paz City. These were selected based on their similarities with the blocks selected in Concepción.

### 2.3.2. Identification and Training of Enumerators

The recruitment stage was conducted three days before the training began. The call for enumerators was disseminated in schools, public areas, radio, and television ads. The only requirement identified during the recruitment process was that the enumerators had to be a high school graduate, at the least.

Enumerators were trained on cartographic updating and on collecting information from the households. The earlier part of the training was allotted for them to familiarize themselves with the forms and questionnaires. On the other hand, the latter part of the training process focused on field practices and use of technological tools (tablets and GPS). The enumerators were guided by the Updater Manual, Enumerator Manual, and the spreadsheet for field operations which also explains how to transmit the data collected.

### 2.3.3. Study Area and Field Operations

**Pilot Study**

The selected location is Concepción. It is considered an agglomerated area and, according to demographic projections for 2013/2014, it would be comprised of approximately 7,432 residents and 2,123 households. Concepción was selected primarily because it is one of the most populated municipalities in the province of Ñuflo de Chavez.

A team of six enumerators and a supervisor was formed. The supervisor has skills in filling out the questionnaire, group management, interviewing techniques, logistic of traveling, management of technological equipment (tablet, GPS), management of oversight forms and necessary material for the capture of information: tablet, map pockets, distinctive (uniform) sticker’s, maps, calendars.

**Second Phase**

The selected location is Vallegrande. It is a municipality and the capital of the province of Vallegrande in the department of Santa Cruz. Aside from being one of the more populous areas in Santa Cruz, the Municipality of Vallegrande was selected primarily because the distance from the town to the capital
is about 242.5 km (approximately 5 hours and 17 minutes), so there is a high probability of finding people in their homes by the time of the interview. In total, 2,968 households were interviewed.

### 2.4. Data Processing

Figure 1 shows a diagram of the information system that is going to be used, it process is; questionnaire consolidation, application for the tablet, capture data in land, transfer information to the Database server and finally generating reports through a platform of information presented on the Web site of ARU Foundation and a proper domain of the initiative.

![Information System Diagram](Image)

For this new stage a system in CSPRO, CSEntry was developed for the tablets, so there was more control over the address where the information was sent to, the inside of the data base and the online information sending reports.

The protocol of information sending, for this second incursion of the project was: to send the information to the server daily at the end of the day, the server gathered all the information in the tablets and transformed it to Stata, R, and SPSS format; the topic supervisor had to check the data base every two days and had to report to the field operation supervisor if there was any inconsistency in it; to check and correct the enumerators with instructions so they could keep on collections information appropriately.

### Thematic Maps

Thematic maps are based on indicators such as geographical characteristics of the town of Concepción. They represent numeric variables that use visual resources as surfaces of different colors or patterns, drawing lines connecting points of equal value (isolines), deformed maps for each geographical unit represents a size proportional to its numerical value. Thematic maps are designed
to disseminate practical information to local and regional government authorities and other policy makers.

**Figure 2: Incidence of deprivation of basic services, Vallegrande, Bolivia, 2016**

Source of basic data: CBMS Census, Vallegrande, Bolivia, 2016

**Figure 4: Incidence of extreme multidimensional poverty, Vallegrande, Bolivia, 2016**
2.4. Data Validation

The validation process consists of assessing and verifying if the information collected is complete and correct. For this purpose, the local research team considered three types of validation; a statistic validation, a field validation and a community validation. The online data transmission allows for easier control over the database.
Statistic Validation

The statistical validation of the project begins at the algorithms programmed in the application used. The tablet questionnaire guides the enumerator through the interview with additional observations on the questionnaire filling; if the answers are numeric, alphanumeric or alphabetic. It also gives the option of leaving the questionnaire unfinished temporarily until the informant is available to continue with the interview to finish the questionnaire.

Field Validation

Field inspection is performed by the coordinators to check if the interviews are being done in the expected manner and if all areas are being covered. Coordinators are also tasked to visit areas with the highest incidence of non-present households as well as revisit households and confirm the accuracy of the information on expenditures, employment, and income.

Community Validation

After the census process is finished, a general descriptive statistics analysis of the data is made and presented to the local authorities. The validation of the information by members of the community is conducted through the following activities:

- Radio and television advertisements about the field operation progress (before, after and during the field operation).
- Community census
- Invitations through citizen letters to preliminary results presentations.
- Preliminary results presentation to the authorities (mayor, sub-government authorities)
- Presentation of preliminary results to the population in general (community)

2.5. Database Management

The results are available for the authorities, technicians, social organizations, universities, and other authorities that may use the database for assessment, diagnosis, and discussion on local and public policies.

The following tools were used:

- A web page that contains available documents and products, all generated by the project (manuals, questionnaires, and forms).
- A database platform called Redatam, a free software that allows users to generate indicators and show thematic graphs and maps.
- Research papers

System Information on the Web

The web portal developed is hosted at www.comunidad-i.info, a domain acquired by Aru Foundation in CBMS framework. The portal aims to:

- introduce CBMS to the community, policy makers, and researchers;
- introduce the ‘Community-i’ project of the Community-Based Monitoring System;
- provide information about the project, technical specifications, indicators, and statistics;
- present information on field operations, its development, and the final results;
- generate reports, tables, graphs, and maps from information collected, through the use of Redatam; and
- provide information about the project Comunidad-i.
To facilitate the management of information collected, the Recovery of Data for Small Areas by Microcomputer (REDATAM) software was used. These will allow interactive consultation of the authorities of the community and of different users. The objective of the consultation platform is to encourage research and disseminate results to the public. The program uses a compressed hierarchical database, creates aggregate records of people, homes, and city blocks, or any information on the administrative divisions. You can define, from the database, any geographic area of interest or combinations of these areas, create new variables, obtain several kinds of tabulated information and export outputs to other software. Data from different geographic levels can be combined hierarchically to create aggregated variables and the results can be displayed in maps from Redatam or transferred to a Geographic Information System (GIS).

3. Uses of Data

Data generated from the implementation of CBMS in selected sites has been used to produce a poverty profile of the Municipality of Vallegrande (Fundacion ARU, 2017). In particular, the CBMS census data from Vallegrande was used to calculate and identify the different deprivations experienced by the community in terms of monetary poverty, education, quality of dwelling, social security, and access to basic services across neighborhoods in the municipality. The pilot implementation of CBMS in Concepcion in the Province of Sta. Cruz has earlier been used to conduct
an assessment of multidimensional poverty (Hernani-Limarino, Candia, et al, 2017). Beyond monetary measures, other dimensions of poverty captured from the implementation CBMS include access to education, social insurance in short term (health), social insurance in long term (pensions), and adequate housing, basic services (electricity, water, sewerage and telecommunications).

Moreover, the CBMS data from Vallegrande facilitated the conduct of a research study to examine issues on unemployment among the youth (Hernani-Limarino, Mamani, and Uzquiano, 2017). Specifically, CBMS data on about 6,000 individuals from over 2,000 households on household organization, employment, income, expenditures, and assets have been used to examine labor force participation among the youth. Data facilitated identification of youths who are unemployed and underemployed (visible and invisible) and their labor force participation as compared to adults. It was also used to provide evidence and analyze the reasons for the non-participation of the youth in the labor market and determine the factors affecting low earnings among the youth.

Instances that use the CBMS are: (i) local actors, referring to the authorities and civil society linked to the town and the municipality, and (ii) actors in the department, which goes into conceptualization and implementation of monitoring systems for policies in the local scope and department. At the last level, called MESO, it seeks the intervention of social control instances and accountability, every time that it is allows you to generate data to powerful evaluate programs.

Also, the information is available to researchers interested in explaining changes in social welfare; information provides important inputs to study field impact and others. So far identified some possible uses:

a) Actors Department (Exercise Authorities in the area of statistics)
   • Input for departmental development projects and planning
   • Departmental cartography update input

b) Municipal Actors (Government authorities)
   • Input for planning POA
   • Input for Monitoring System for public policy

c) Local Actors
   • Information available to promote change
   • Input for policy monitoring and community development

Other uses:
   • Strengthens local governance and management through the generation and use of accessible and pertinent data in order to address the lack of disaggregated data at the local level
• Contributes to local development planning through specialized information that allows assessment of people's welfare and social needs as well as easier impact evaluation and monitoring

• Generates thematic maps for the community
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

In 1987, Haiti adopted a constitution which, for the first time in the country’s history, has established the institutional strengthening of local authorities. In the context of the fight against poverty, these dynamics has fueled the participatory process as it has been included in the Document de Stratégie Nationale pour la Croissance et la Reduction de la Pauvreté (DSNCRP) or the National Strategy Document for Growth and Reduction of Poverty prepared by the Government of Haiti in 2007.

The implementation of this strategy paved the way for the creation of the Observatories National de la Pauvreté et de l’ Exclusion Sociale (ONPES) or the National Observatory of Poverty and Social Exclusion with a mandate to carry out studies on monetary and human poverty and social exclusion; to collect, synthesize, analyze statistical data on poverty and social exclusion; to report citizen monitoring of projects and activities undertaken within the framework of this strategy and to make proposals; and to assist local authorities in gathering statistical data on the evolution of poverty and the development of sets of indicators for the monitoring of public policies against poverty.

The implementation of the DSNCRP, however, showed some weaknesses with respect to targeting of the poor and helping vulnerable local actors develop their own strategies to reduce poverty. A critical review of the DSNCRP has shown that the document reflected very little of the economic dynamics experienced by the country over the last thirty years. Indeed, macroeconomic policies enforced in the 1980s to 1990s, policies characterized by all-out trade liberalization, have contributed to the weakening of the country’s economy. The trade liberalization policy was conducted without improving the sectors which competed with the import industry. This was followed by a disruption of Haitian economy that favored the commercial sector at the expense of the productive sector; thus, creating the expansion of the informal sector.

The agricultural sector, which became the main victim of this policy, has lost more market shares due to increased agricultural imports. The weakening of the agricultural sector and the low prices of food in urban areas caused a massive migration to cities that enhanced the growth of informal sectors, resulting to unemployment and underemployment. The long periods of decline (between 1986 and 2001) and low economic growth in 2006 have reinforced the expansion of the informal sector in urban areas involved in importing of junk. Micro enterprises specialized in crafts and in the production of import-substituted goods were swept away in favor of commercial activities. Meanwhile, in rural areas, several micro entrepreneurs decided to engage in the retail sale of non-agricultural products instead.

The earthquake that hit Haiti in January 2010 led to a new phase of mass poverty and expansion of
the informal sector. The disastrous consequences of the earthquake at both central and local levels have pushed the state to gather relevant information to determine the evolution of these two phenomena. In this context, the development and management of the information system on poverty and social exclusion needed to be strengthened and extended to local and regional authorities. Therefore, it was imperative to understand the local manifestations of poverty and to provide analytical instruments through data collection and management of relevant statistical data. The implementation from 2011 to 2016 of a large variety of cash transfer programs addressed to the poorest segments of the population has highlighted the necessity to address the problem of inaccuracy in terms of identifying beneficiaries.

1.2. Review of Existing Monitoring Systems

Several surveys and studies have been conducted to understand the complex issues of poverty in Haiti, but local poverty statistics are limited. The two main sources of statistically representative surveys on income poverty in Haiti are the EBCM 1999/2000 and l’ECVH 2001 which were carried out by the Haitian Institute of Statistics and Informatics (IHSI). In addition, a survey on the perceptions on poverty conducted in 2003 by the Ministry of Planning and External Cooperation with support from the United Nations Development Program (UNDP) aims to identify events, trends, and causes of poverty as well as address the priorities of and identify institutions engaged in the fight against poverty. Another initiative is the spatial analysis of poverty (poverty mapping) by the Ministry of Planning and External Cooperation with the support of the Inter-American Development Bank (IDB) in 2004. This poverty mapping initiative covers 133 municipalities in the country which enabled the formulation and implementation of policies and programs in the context of decentralized management and reduction of poverty.

Other main sources of data include the Recensement Général de la Population et de l’Habitat 2003 (RGPH) or the General Census of Population and Housing 2003 which was conducted by the IHSI in 2003 and the Enquête Mortalité, Morbidity et Utilisation des Services IV (EMMUS IV) and EMMUS V or the Mortality, Morbidity, and Service Utilization Survey IV and V led by the Institut Haïtien de l’Enfance (IHE) or the Institute of Haitian Children’s Fund in 2006 and 2012, respectively.

The DSNCRP has selected a core set of indicators in tracking thematic areas in the fight against poverty. However, the core set of indicators raises the problem of being able to acquire the data needed, given the state of the statistical system in Haiti. While some indicators are being monitored by the national statistical system, its quality and consistency is not guaranteed (particularly in the areas of education and health).

The World Bank has published in 2014 in cooperation with the ONPES and on the basis of statistics from the Survey on the living conditions of households after the earthquake (ECVMAS) an

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important report on monetary and multidimensional poverty. A new national poverty threshold in Haiti has been set based on the consumption data of the population.

2. CBMS Design

2.1. Introducing CBMS in Haiti

The project to introduce CBMS in Haiti goes back to a workshop organized in July 2011 by the CBMS Network, the Centre International sur la Recherche pour le Développement (ICRD), and the UNPFPA which was conducted to inform participants about the use of CBMS as a system of monitoring poverty at the local level. Among the participants were representatives of the Haitian Observatory of Poverty and Social Exclusion (ONPES) and mayors of the Metropolitan Region of Port-au-Prince (the capital of Haiti). This first workshop was an opportunity for mayors to discuss the lack of a methodology allowing local institutions, etc. such as municipalities and communal sections to have statistical data that can facilitate decision-making at the local level and the development of informed public policies for the benefit of the population (e.g. problems confronted by the communes and communal sections in important areas such as health, education, and safe sanitation and drinking water).

The success of the workshop and the positive feedback received from municipalities of the Area Metropolitan facilitated the creation of a project with the aim of spreading the use of the CBMS approach in municipalities in Haiti. To assist in the realization of this goal, the Centre Haïtien d’Etudes et de Recherches Internationales, Economiques et Sociales (CHERIES), which is specialized in carrying out and promoting research on poverty in Haiti, has developed a project on the profile of poverty in two communal sites in Haiti, namely Cite Canada, an urban community in Port-au-Prince (Turgeau) in the Western Department and Chevalier, a community located in the town of Coteau in the south of the country.

2.2. Key Features of CBMS in Haiti

The pilot project aims to understand the local expression of poverty and social exclusion and to provide tools for local authorities to develop a thorough understanding of these phenomena, enabling them to implement local development plans and local strategies contributing to the fight against poverty and social exclusion. The adoption of CBMS by the authorities will help them to strengthen local governance, specifically to increase the autonomy of local communities. With this pilot study on CBMS, the ambition was to convince other municipalities and local authorities in the country to adopt the CBMS as a tool for local planning.

The research is based on the CBMS methodology and its mode of implementation which have been proven in many countries. It takes advantage of the lessons learned from the CBMS experiences in
those countries and adapts certain aspects to the situation of Haiti. The methodology of the research entails:

a) the development of a participatory process that integrates local authorities in both municipalities and the enumerators; and

b) operations that address the data collection, the data processing, training of enumerators, data validation, data encoding, and database management.

Community Involvement

For the appropriation of the CBMS and the success of the research, it was important that the two communities in which it was deployed are well informed about the objectives of the investigation. The research has placed particular emphasis on the fact that the enumerators who was involved in the data collection was from the two communities.

2.3. Adjustment of CBMS Methodology to Haiti’s Context

2.3.1. Core Poverty Indicators

In accordance with the main dimensions of poverty and social exclusion the research focus on a set of indicators that are divided into four groups.

The set of indicators take into account the multidimensional nature of poverty and goes beyond monetary indicators such as income, for example. It includes indicators relating to identity, insecurity and social protection in the informal sector. Investigations in this first pilot phase cover a deficit on the local statistics of poverty and social exclusion, given that they are generally not monitored at the municipal level.

Effectively, municipalities and local authorities have no information system about the essential dimensions of poverty and social exclusion and therefore are unable to develop local policies or participate in the formulation of budgetary policies reflecting their needs.

Table 1: CBMS Core Indicators, Haiti, 2014

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Percentage of infant mortality children aged under 5</td>
</tr>
<tr>
<td></td>
<td>Percentage of women who died of pregnancy</td>
</tr>
<tr>
<td></td>
<td>Number of medical visits by members of the household during the last 12 months</td>
</tr>
<tr>
<td>Category</td>
<td>Indicator</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sanitation</td>
<td>Distance from nearest health center</td>
</tr>
<tr>
<td></td>
<td>Percentage of households with sanitary facilities (toilets, latrines)</td>
</tr>
<tr>
<td></td>
<td>Percentage of children aged 0-5 years malnourished</td>
</tr>
<tr>
<td></td>
<td>Percentage of household with a hot meal per day</td>
</tr>
<tr>
<td></td>
<td>Proportion of household having stock of cereal until the next harvest</td>
</tr>
<tr>
<td>Food security/Nutrition</td>
<td>Percentage of households living in makeshift housing</td>
</tr>
<tr>
<td></td>
<td>Percentage of households living in temporary shelters</td>
</tr>
<tr>
<td></td>
<td>Number of people per square meter in the housing</td>
</tr>
<tr>
<td></td>
<td>Percentage of households who own the house where they live</td>
</tr>
<tr>
<td>Housing</td>
<td>Percentage of victims of violence and crime</td>
</tr>
<tr>
<td>Education</td>
<td>Percentage of children ages 6 to 12 who do not attend school primary</td>
</tr>
<tr>
<td></td>
<td>Percentage of children ages 13 to 16 who do not attend school secondary</td>
</tr>
<tr>
<td></td>
<td>Education level of the head of household</td>
</tr>
<tr>
<td>Employment</td>
<td>Percentage of persons who have an employment</td>
</tr>
<tr>
<td></td>
<td>Percentage of persons who have an employment</td>
</tr>
<tr>
<td>Income</td>
<td>Proportion of income providers in the households</td>
</tr>
<tr>
<td></td>
<td>Proportion of income providers in the household that is working in the informal sector</td>
</tr>
<tr>
<td>Social Protection</td>
<td>Percentage of household receiving transfers from a social welfare institution</td>
</tr>
<tr>
<td></td>
<td>Percentage of persons receiving transfers from parents in the Haitian Diaspora</td>
</tr>
<tr>
<td></td>
<td>Percentage of persons integrated into an informal association of aid and solidarity</td>
</tr>
<tr>
<td></td>
<td>Number of informal social welfare institution in the commune</td>
</tr>
<tr>
<td></td>
<td>Number of state formal institution in the commune</td>
</tr>
</tbody>
</table>

The first phase of activities was the organization of a workshop on CBMS, its methodology and its objectives. The data collection process has been preceded by a presentation of the CBMS Project to the population of both municipalities and also to local authorities. The objective of this presentation was to familiarize the stakeholders with the research project which is to develop an information system on socio-economic data of poverty at the municipality level. Project results were the development of municipality capacities to identify ways for planning and implementation of programs that can realize a better targeting and be more responsive to the needs of the vulnerable
populations in both municipalities. Participants in this workshop have been members of municipalities, organizations of the civil society, enumerators and supervisors of the census.

After the presentation of the Project by the research team a workshop was organized with the local authorities in order to determine the specificities of the areas to be covered by the census operations and to obtain useful information for the building of the team responsible for the field work.

2.4. Data Collection

2.4.1. Data Collection Instruments

Data collection was done using:

a) A structured questionnaire which includes a set of questions on demographic and economic characteristics etc. addressed to heads of households and to their members in both municipalities of Cite Canada and Chevalier using the Household Profile Questionnaire (HPQ).

b) A rider questionnaire that includes two specific modules on issues related to the informal sector and social protection component of the project. These modules include questions on the level of access of the populations in both communities to the social protection systems, on the various shocks and risks faced by households and response strategies developed by them to deal with it (Rider Questionnaire). For reasons of efficiency, the Rider Questionnaire was integrated to the HPQ.

c) A community questionnaire sent to local authorities in both Project sites. The questions focus on information and data on the socio-economic conditions in both Project sites, on social and economic infrastructure, on health institutions, the number of schools, on health facilities, social protection institutions, telecommunications infrastructures, basic social services and economic structures and activities etc.

Since there was no previous data collection on poverty conducted in the study areas, the project had no baseline from which data collection could be done. Thus, it was necessary that the questionnaire was constructed in such a way that other authorities in the town can respond and help complete the data delivered by the local authorities.

2.4.2. Identification and Training of Local Enumerators and Supervisors

The second phase of activities involves a training workshop on data collection techniques. The participants include those who were interested to fill the positions of enumerators and supervisors of census operations. It was important for the research team that the enumerators and the
supervisors were natives from the municipalities covered by the census. The research team has organized in both municipalities more than three training workshops in order to explain to the enumerators the importance of the census and the different modules.

The documents used in this workshop were the household questionnaire, the community questionnaire, and the enumerator manuals. A pre-test of the questionnaires and a demo on the use of android tablets for the census was conducted in order to help enumerators be familiarized with the different modules and interview techniques. The pre-test was crucial in identifying the weaknesses of the questionnaires and the difficulties in conducting the fieldwork. Following this evaluation, the list of enumerators and supervisors was finalized.

2.4.3. Study Area and Field Operations

All sites were examined with the aim of collecting data on the situation of poverty of households, getting basic data on poverty through the CBMS methodology, and establishing the poverty profiles in these three communities as a tool useful in the implementation of local policies.

The selection of the two pilot sites was not an easy task because it had to meet several criteria:

- The membership of at least one of the sites to the group of municipal representatives having participated in the introductory CBMS seminar which was organized in the capital, Port-au-Prince;
- A population whose size would allow the realization of a census which involves face-to-face interviews of all household.
- The feasibility of the project within the financial resources available to the research project

Based on these criteria, the following sites were selected:

*Cite Canada*

This is an area related to the development of the communal section called Turgeau in the Municipality of Port-au-Prince. Located on a hillside about 300 meters high, the area is an outgrowth created from scratch by people looking for independent housing accommodation in the Lower Turgeau whose housing market appears above their means. Two economic activities occupy the inhabitants of this district: domestic services in the affluent homes of Lower Turgeau or informal trade of about 2 km along the main road called Avenue Jean-Paul II which is the economic heart of Turgeau. However, a relatively significant number of households can be spotted in the formal sector (low-level public officials, school teachers, etc.).
The site of Upper Turgeau is a concentrated aggregate of all urban ills: threat of rock falls and landslides during the rainy season, human overcrowding, virtually no access to running water, frequency of problems violence, stigma, etc.

This space lends itself to analysis of poverty because it accumulates all the handicaps: distance from areas of employment, deteriorated living conditions and so on. These handicaps seem to be at the same time an opportunity for residents to develop relationships of solidarity. The impact of shocks and the weight of the risks to which the population is facing make this area an interesting space to conduct a pilot research in the context of a diagnosis of poverty and social protection. The number of households covered in the CBMS census is 303 households.

**Chevalier**

Chevalier is a municipality section in the South of Haiti located in the city of Coteaux belonging to the fourth communal section named Conde. It consists almost entirely of plains bearing the same name. It is crossed or rather it spreads along the main road which leads to the four southern towns of the peninsula (Port-à-Piment, Charbonnières, Les Anglais and Tiburon). It is bounded on the north by the Jargeau Habitation, to the south by the Caribbean Sea to the west by the Gardois Habitation and to the east by the river Mulet which forms the border between the municipalities of Coteaux and Roche-à-Bateau.

The population in Chevalier is engaged in four main activities: cereal-based agriculture (millet and corn), livestock, fishing and informal trade. The CBMS census was able to cover 363 households in this area. The characteristics of Chevalier are as follows: a high level of social homogeneity, a torn border area between two towns (Roche-à-Bateau and Coteaux) and a severe deficit in basic social services.

Chevalier is near a touristic site that develops around the city of Port-Salut and attracts many local tourists. The development of this economic activity is the cause of the outbreak of an informal sector of which the most obvious manifestations are seen in the markets of the region. Indeed, the prevalence in neighbouring markets of imported junk products over agricultural products is increasingly felt.

The census took place from April to June 2016 in Cite Canada and Chevalier. Three teams of enumerators and supervisors conducted the data collection. The enumerators and supervisors were a mix of locals and select researchers from CHERIES. The investigations were made on the basis of a comprehensive questionnaire and of a manual for investigators.

### 2.5. Data Processing

Different software programs such as R, SPSS, and Strata were used to process data on poverty.
The presentation of the results of the survey includes the different modules of the Questionnaire on the different facets of poverty. The analysis of these different facets is done for each of the two sites. It identifies the specificities of each community and the differences in the level of poverty between them, while pointing out avenues for research with a view to extending our work to all municipalities in Haiti.

2.6. Data Validation

The data collection process has been validated on the basis of consistency checks. This has covered all the questionnaires and with strong involvement of supervisors and the research team. At the end of this process of validation of the census results, the data was presented to the local authorities and to other stakeholders such as sectorial ministries (health, education, economy, and finance etc.) and other local organizations such as the university and non-governmental organizations. Following this presentation, the some corrections were conducted and the results were finalized before it was formally shared to the community.

2.7. Database Management

The data collected on tablets was transferred to a computer (supervised by a group of two technicians familiar with this kind of operation) and the consolidated data was transmitted to the communal office.

The data was made available to the communal sections that hosted the project and to the requests from the municipal planning office, teams of implementation, and other interested groups. This is done through computerized databank, conferences and workshops, radio broadcasts, and through the internet. The audience consists of functionaries of administrations at the municipal, departmental, and national levels as well as other executives responsible for the planning of projects and programs to fight against poverty and social exclusion, representatives of civic institutions, non-governmental organizations, and development partners.

3. Uses of Data

The data will serve as inputs for the preparation of local development plans and socio-economic profiles of the population of the two sites. These will enrich the knowledge of the intervention sites for projects of NGOs and other donors and will allow, at the same time, to better target beneficiaries of programs to reduce poverty and social exclusion. The results and the plans and profiles generated from the results constitute a first body of data and experience that can be used as reference by local authorities of other municipalities in the country.
Data generated from the implementation of CBMS in selected sites Cite Canada and Chevalier were used to analyze how socio-demographic characteristics such as age, sex, level of education, and household income influence the strategies adopted by households to respond to shocks and manage risks as part of a research study of CHERIES on providing social protection to the informal sector.

The data collected at the two communal sites showed that they suffer from a high degree of poverty. While differences exist between the two sites in certain socio-demographic characteristics, they are never very pronounced, with the exception of a few indicators such as the level of participation in mutual societies, which is much higher in Chevalier, or the existence in the municipality of Turgeau (where Cité Canada is located) of a high concentration of academic institutions.

The survey shows that remittances from families living abroad play a very important role in the lives of the two communities. These transfers compensate for the lack of jobs and social protection. However, not all households have this source of money. It is among this category that there is a great willingness to create mutual and solidarity organizations. It would therefore be important, on the basis of the survey results, to continue to reflect on the weight of transfers in the lives of the communities analyzed in this study and on their impact on the state of social protection. The survey data indicate that this weight is considerable. This allows us to reflect on the possible contribution of transfers to the establishment of social protection systems in poor communities. It would be interesting to create financial social protection programs based on transfers from parents living abroad, but where these parents themselves could be included.

Regarding the ability of the informal sector’s poor to move out of poverty, the data showed that the level of household skills is very low, which does not indicate a trend towards qualification of informal workers and the possibility of building an informal sector trajectory that allows them to earn more income and move out of poverty.

The analysis of the poverty profile in the two communities revealed that the effects of location on poverty are significant. Being born and living in one of the communities whose profile is described in this study means that it is more difficult than others to attend decent schools, to find a job and to undertake activities that are often informal and painful. Low-income earners, have poor access to basic social services and do not benefit from a social protection system. By setting up a system of local statistics, municipalities hold in their hands data allowing them to assess the relevance of public policies designed for the communities by national authorities and to develop better informed local programs that respect the needs of the community members.

Regarding the ability of the poor to move out of poverty, the data showed that the level of household skills is very low, which does not indicate the trend towards qualification of informal workers and the possibility of building an informal sector trajectory that allows them to earn more income and move out of poverty.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

Recognizing the need to address the identified weaknesses of existing poverty monitoring systems in Nicaragua, the CBMS was pilot-tested by local researchers from NITLAPAN. The CBMS is an organized process of collecting, processing, validating and use of data for various development concerns. It was developed in the Philippines in 1993 by De La Salle University, and has been used by Local Development Units in this country since 2000 as a tool for local development planning. With the aim to fill in the necessary information for more evidence-based planning and program implementation, it generates a core set of indicators that enables monitoring of the multidimensional nature of poverty, such as the SDGs.

Despite the current efforts of governmental national programs and microfinance programs in rural areas to address rural poverty through the provision of capital and sometimes technical assistance, the lack of accurate and updated data on population, living conditions, and local dynamics hinder the organizations’ capacity to design evidence-based poverty reduction and financial inclusion strategies. It also restricts the analysis of the impact of governmental and non-governmental programs on poverty reduction and the comparison of the pertinence of different mechanisms (group/individual credit and complementary services) and policies (requirements, targets, terms, structures, flexibilities, and costs) that target limitations of women in developing microenterprises.

Earlier studies have shown that exclusion, resource concentration, and environmental degradation are being experienced in Rio Blanco, Central Nicaragua due to the consolidation of the extensive cattle raising development pathway (Bastaensen, Merlet, & Flores, 2015). Findings stress the necessity of changing this environmentally and socially unsustainable pathway and also points out the need to understand the multidimensionality of poverty and identify the causes of exclusion from a socio-institutional perspective. To address the needs identified by earlier studies, constructing and implementing a community-based monitoring system (CBMS) is explored.

Implementing a local monitoring system like CBMS, which generates household and individual level data, aims to contribute to a better understanding of the heterogeneities among rural families in Nicaragua in the context of poverty reduction and the SDGs, and in examining factors affecting financial inclusion and entrepreneurship particularly among women in a rural region like Rio Blanco. The CBMS is also intended to complement the national statistical information system for producing reliable indicators that can be monitored at the local level which are needed for poverty monitoring, poverty profiling, and poverty mapping- which are the main instruments that national and local governments must use in developing poverty reduction programs. Moreover, the data that can be generated from implementing CBMS will give insights to decentralized organizations and to the local governments on how to design evidence-based financial and non-financial policies that could better
address the limitations rural women have when it comes to improving microenterprises.

On the other hand, the outputs from the implementation of CBMS also aims to complement and help deepen the many years of reflection and analysis of organizations such as Nitlapan together with other research institutes and local organizations on the territorial dynamics in a Nicaragua Region with high rates of resource concentration (land, water, credit), environmental degradation and poverty incidence. In particular, CBMS aims to address information gaps that restrict the scope and the impact of programs in these areas. Therefore, a CBMS in rural communities in Rio Blanco will serve as a pilot study for these organizations to test evidence-based policy design while focusing on rural women. In the long term, this methodology could be a mechanism to promote the scope of decentralized policies based on evidences and particularities of the local dynamics to the government and other centralized and non-centralized organizations.

Together with local stakeholders in rural communities in Rio Blanco the implementation of a CBMS was pilot-tested to provide the needed quantitative information on rural families' vulnerabilities not just from an individual perspective but also from an intra-household and community perspective. The CBMS data aims to help identify who are the poor, why they are poor, and where they are. It is also deemed useful for monitoring the sustainable development goals (SDGs) at the local level and in identifying factors that deepen rural population vulnerabilities, such as gender, generational, organizational aspects, and access to markets and services.

1.2. Local Government Structure

Nicaragua is composed of 15 departments and two autonomous regions. The departments and regions are divided into 153 municipalities. A municipality is the base unit of the political administrative division in the country. It is divided into barrios, comarcas, valleys, communities, and hamlets (La Gaceta, 2013).

Each municipality has a municipal head where local government is located. A local government, composed of elected mayors, vice-mayors, and municipal council members, is an autonomous entity who works in coordination with the central government. The mayor is the highest executive authority of the municipal government. Together with the vice mayor, the mayor oversees the design and implementation of the local development plan following the guidelines of the municipal council and ensures the inclusion of programs that cater to the demands of their constituents. The municipal council has the responsibility to establish the main guidelines of municipal management in economic, political, social, and environmental issues.

In coordination with the municipal council, the Government of Nicaragua provides programs, funding, and other resources to rural and urban communities through ministries such as the Ministry of Health (MINSA), Ministry of Education (MINED), and the Ministry of Family, Community, Cooperative and Associative Economy (MEFCCA). National programs which have been implemented
through MEFCCA and are focused on poverty reduction such as the Zero Hunger program, Usura Cero, Plan Techo, and Crisol program.

1.3. Review of Existing Monitoring Systems

*Census of Population and Housing – Unsatisfied Basic Needs Index*

In Nicaragua, the national population statistics come from the Census of Population and Housing. This census collects information to construct the Unsatisfied Basic Needs (UBN) index, the official national index to measure multidimensional poverty in the country. The UBN method is widely used to estimate poverty across different areas in Latin America. Using the national census, a series of indicators which determine whether or not a household has access to basic needs is established. These indicators are summarized in four basic needs – housing, health services, education and economic capacity which are used to generate the UBN index. Although this method presents great strength in the sense of representation and disaggregation of information, it also presents weaknesses in terms of periodicity. Because conducting the national census is costly, it is conducted every 10 years. Policy makers are unable to evaluate the results of poverty reduction initiatives due to the lack of updated data.

*National Agricultural Census and Urban Economic Census*

Aside from the national census, two other censuses which provide relevant information for rural and urban areas are the National Agricultural Census which collects information on agricultural production in rural areas and the Urban Economic Census which collects information on economic activities in urban areas.

*International Foundation for Global Economic Challenge Survey and Living Standards Measurement Survey*

Other poverty monitoring systems at the national level include the household survey conducted by the International Foundation for Global Economic Challenge or *Fundacion Internacional para el Desafio Económico Global (FIDEG)* and the *Encuesta Nacional de Medición del Nivel de Vida (ENMNV)* or the Living Standards Measurement (LSM) survey conducted by National Institute of Information Development or *Instituto Nacional de Información de Desarrollo (INIDE)*, 2015). Both surveys are conducted every five years.

The LSM survey, in particular, collects information on levels of expenditure and consumption of households, access to basic services, and characteristics and living conditions of households. Because it only covers part of the population, the LSM survey is cheaper and can be conducted more frequently compared to the censuses. This allows policy makers to analyze the effects of policies related to
poverty reduction and assess changes in income inequality and household consumption. However, some experts and think tanks in the country question the results presented by this method because it is based on an outdated sampling frame, lacks departmental representation, and, consequently, loss of statistical disaggregation. Several households are considered non-poor despite being in areas that are highly vulnerable to poverty.

2. CBMS Design

The community based monitoring system is referred as a methodological tool that provides disaggregated data for evidence-based policy making, target definition, program design, and implementation, as well as impact monitoring overtime. The introduction and pilot implementation of CBMS in Nicaragua specifically aims to complement the analysis and reflection on poverty and inequality in the region by providing information on rural families’ vulnerabilities from an individual, intra-household and community perspective.

At the onset, orientation and a series of consultation meetings with the municipality of Rio Blanco, Ministry of Education, Ministry of Health, cooperatives, and non-governmental organizations are organized and conducted by the local CBMS research Team from Nitlapan. These activities aim to discuss with the key stakeholders what the objectives of the CBMS initiative are, identify the gaps between the data requirements and available sources of information in the area, and assess how to incorporate these gaps into the core CBMS data collection and processing tools to be developed. It also aims to establish collaboration for the conduct of the entire CBMS process. The meetings involved the participation of representatives from La Campesina and Hermandad Campesina, cooperatives that work mainly with small cocoa producers, representatives from Cooperative Mujeres Productoras De Rio Blanco (COOMPRIO), a cooperative for women. Moreover, a workshop was also conducted in each of the three main communities in Rio Blanco – Manceras Central, Wanawás, and Cuatro Esquinas. The workshops are meant to emphasize the role or participation of small producers (especially women) who tend to be excluded the most from higher-level discussions. Presentation and discussion about the CBMS initiative was also conducted for local organizations and residents of the rural communities.

This section describes in detail the different components of the CBMS methodology that were implemented and how each step of the process was operationalized in the context of Nicaragua.

2.1. Indicators

2.1.1. Core Poverty Indicators

A set of 32 indicators of poverty, shown in Table 1, covering 9 dimensions were identified to be generated through CBMS based on the information gaps identified from a review of existing/previous
censuses, the operational definition of poverty in Nicaragua, and what information can be collected and measured at the household level. These set of indicators are also selected to be able to monitor and report on the status of achievement of 12 of the Sustainable Development Goals (SDGs) at the local level using the case of the pilot site.

Table 1: CBMS Core Poverty Indicators, Nicaragua, 2018

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Proportion of overcrowded households</td>
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<tr>
<td></td>
<td>Proportion of households with a house made of inadequate material</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households with access to safe water</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with safe sanitation</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with access to a hand-washing facility with soap and water near the toilet/latrine</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with adequate garbage management</td>
</tr>
<tr>
<td>Fuel and electricity</td>
<td>Proportion of households using dirty cooking fuel</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with access to electricity</td>
</tr>
<tr>
<td>Education</td>
<td>Proportion of household heads who completed less than six years of schooling</td>
</tr>
<tr>
<td></td>
<td>Proportion of population that cannot read and write</td>
</tr>
<tr>
<td></td>
<td>Proportion of households where no one has completed six years of schooling</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 6-14 years old who are not attending school</td>
</tr>
<tr>
<td></td>
<td>Proportion of households where at least one school-age child is not enrolled in school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 6-11 years old not attending primary school, by gender</td>
</tr>
<tr>
<td></td>
<td>Proportion of household members ages 13-16 not attending secondary school, by gender</td>
</tr>
<tr>
<td>Employment</td>
<td>Proportion of population unemployed</td>
</tr>
<tr>
<td></td>
<td>Proportion of population self employed</td>
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<tr>
<td></td>
<td>Proportion of Population employed by the public sector</td>
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<tr>
<td></td>
<td>Proportion of population employed in the informal sector</td>
</tr>
<tr>
<td></td>
<td>Proportion of population employed within the community</td>
</tr>
<tr>
<td></td>
<td>Average Economic Dependency rate</td>
</tr>
<tr>
<td>Communication and information</td>
<td>Ratio of cellphone users</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Health</td>
<td>Proportion of children under 5 years old who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of people covered by health insurance or a public health system</td>
</tr>
<tr>
<td>Land access</td>
<td>Gini coefficient of land concentration</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with agricultural activities under productive and sustainable agriculture</td>
</tr>
<tr>
<td>Income</td>
<td>Proportion of population living below poverty line, by gender and age</td>
</tr>
</tbody>
</table>

### 2.2. Data Collection

#### 2.2.1. Data Collection Instruments

To collect the information on the core poverty indicators and additional information on entrepreneurship and financial inclusion, three main instruments are designed and implemented: (i) a household profile questionnaire (HPQ), (ii) a rider questionnaire, and (iii) a community profile questionnaire (CPQ). All three questionnaires were designed with the assistance of the CBMS Network.

a) **Household Profile Questionnaire (HPQ):** The HPQ captures household and individual information on various socioeconomic characteristics. It focuses on obtaining information on the CBMS core indicators from households. Demographic and other social characteristics are also captured in this questionnaire. To ensure comparability and consistency with the statistics produced by national government agencies, the CBMS uses concepts and definitions of indicators that are similar to what these agencies have.

It contains 17 sections, divided based on the dimensions of poverty. Some of the questions are answered at the individual level while others are answered at the household level:

1. Location
2. Interview data
3. Housing characteristics
4. Household characteristics  
5. Demography  
6. Education  
7. Employment  
8. Communication and information  
9. Organizations and programs  
10. Mortality  
11. Hunger  
12. Access to land  
13. Assets  
14. Agricultural income  
15. Backyard production  
16. Agricultural expenses  
17. Non-agricultural income  

b) Community Profile Questionnaire (CPQ): One CPQ is filled out per community. It contains 6 sections including information on:  
1. Location and main economic activities  
2. Public services and infrastructure  
3. Productive infrastructure  
4. Financial institutions and access to credit  
5. Access to social services  
6. Disaster risks and effect of climate change  

The questions are addressed to the community's local leaders. For instance, questions related to health infrastructure and access to health services are addressed to health delegates in the community.  

c) Rider Questionnaire: After completing the household questionnaire, a rider questionnaire is conducted and is answered by a woman in case she is not the household head in the first place. The rider questionnaire consists of two sections:
1. Entrepreneurship

2. Access to credit

Each questionnaire has a manual that explains the content of the questionnaire and how each question should be asked and answered. The CBMS-HPQ has two accompanying manuals – an enumerator’s manual and a field editing manual. The former guides enumerators on how to conduct the census while the latter provides pointers for the trained local enumerators on how to check and review the accomplished household profile questionnaire before leaving the census sites during the field operations.

The household census and rider survey operations was facilitated with the adoption of the CBMS Accelerated Poverty Profiling (APP), a computer assisted interviewing approach (CAPI) approach for data collection using a customized CBMS SCAN (electronic form of the questionnaires) and the CBMS Portal for database management.

The CBMS SCAN involves a number of programmed constraints, skipping patterns, and other conditions in order to properly record a certain question/response in the forms. This makes the process more efficient since questions that do not apply to a specific household or individual are skipped in the process.

Prior to finalization of the questionnaires, a consultation workshop with key stakeholders on the data to be collected and a pretest of the data collection tools are conducted to check the reliability of the data collection tools, test the clarity of the questions and ensure that the questions are gender sensible, evaluate the time needed to conduct each interview, determine the distribution of work that will be followed in the field operations, and conduct necessary revisions to the forms before the conduct of the local training of the enumerators and of field data collection.

2.2.2. Identification and Training of Local Enumerators and Supervisors

Considering the area to be covered, twenty (20) local enumerators were identified and trained to collect data. The enumerators identified were young men (11) and women (9) who were selected based on the criteria that they (1) have worked with a local organization in the area; (2) have experience in data collection and using devices; and (3) have awareness and sensibility on gender topics.

Youths in Rio Blanco who worked with local organizations (e.g. COOMPRIO, La Campesina, and Nitlapan), have been trained on gender issues, and have participated in previous data collection efforts thus were invited to train as enumerators for the CBMS census. Since the data collection involved the use of tablet-based application, the criteria in the call for enumerators also included the ability to use tablets.

A 3 day training workshop is organized and conducted by the CBMS-Nitlapan research team for the selected enumerators to ensure data quality. The workshop covered introduction and discussion of
the objectives of the activity, administration of the data collection instruments (household profile questionnaire, community profile questionnaire, and rider questionnaire, and CBMS-APP SCAN tool), and census/survey operations guidelines.

2.2.3. Pilot CBMS Census Sites and Field Operations

Before starting the fieldwork for data collection, a list of households was constructed per community through help of local health delegates. The list helped estimate the expected number of households to be interviewed in the area and organized the route and timetable for conduct of data collection.

Four groups of enumerators were formed to cover the CBMS census area. For every group of enumerators, a supervisor was assigned to review and validate the completeness and accuracy of the data in the filled out forms before uploading them to the CBMS Portal.

The CBMS was pilot tested in Río Blanco, a municipality in the Matagalpa Department of Nicaragua. The study area covers three rural comarcas, 35 communities, 1,877 houses, 2,235 households, 8,360 individuals, 4,268 men, and 4,092 women. In each comarca, there is a community with the same name as the comarca. These are the main hamlets Wanawás, Cuatro Esquinas, and Manceras Central. In comarca Wanawás, there is another main hamlet called La Isla located at the south and nearer to the municipal head. All the main hamlets are characterized by commercial activities since the population density and concentration of houses are higher in these areas.

Figure 1: Selected comarcas in Rio Blanco, Nicaragua

The study area has good environmental and livestock conditions to produce cocoa, beans, and dairy products. In this micro territory, small farmers co-exist with medium and large cattle producers. Main economic activities are the production of cocoa and the production of white and fresh cheese in which
there are active women collaborations. Most of the households in Cuatro Esquinas are very disperse and are very poorly connected through roads. There is hardly any form of communication due to disperse location. The communities in the Wanawás, on the other hand, have better market access and good social structure controlled by middle livestock producers. Livestock producers coexist with the poor rural population with few land resources. The rural people focus on bean and maize production. In the three comarcas, majority of adult population work on agricultural and livestock activities to supply the local, national, and Centro American markets.

Rural women used to create income-generating activities such as raising pigs, cows, and poultry, processing milk, producing candy, and baking. Unfortunately, there is no available data about this kind of micro/small businesses.

Formal credit is accessed via financial institutions FDL and Fundeser, cooperatives and NGOs La Campesina and Nitlapan, or the governmental programs Bono Productivo and Crisol program and Usura Cero. Meanwhile, informal credit is accessed via local milk, cheese, and cocoa collection centers, suppliers, and money lenders.

Typical for a large part of the Nicaraguan interior in Rio Blanco municipality is the dominant historical pattern of extensive livestock and land ownership of few men. This forces small farmers to go beyond agricultural perimeters, contributing to social polarization and alarming deforestation levels. Therefore, this model is not sustainable in both social and environmental terms and will require strategies that can help poor families thrive in agricultural livelihood. This is especially true for female farmers since raising cattle has been an activity that is strongly dominated by males.

While Wanawás has served as a commercial center for surrounding communities, Cuatro Esquinas and Tawa have experienced difficulties related to market access, insufficient presence of external organizations, and dependence on agriculture. Because of this, the three sites can be compared by looking at their differences in terms of poverty incidence, strategies used to gain access to credit, and the role of training programs in each site.

One of the biggest problems that the rural areas in Nicaragua have is the legalization of their properties. The opportunity to develop and implement CBMS will give valuable information about the size of the effort that the state must develop to try to order and title the rural property in Rio Blanco.

In Rio Blanco, Nitlapan has been working through research and development projects for over 7 years. Both communities are part of prioritized territories in Nitlapan due to social exclusion and high percentage of families living in poverty conditions.

### 2.3. Data Processing and Database Management

For the pilot CBMS implementation in selected sites in Nicaragua, the household and individual level information collected from the conduct of the CBMS census and rider survey was processed using the
statistical software Stata 15. Data processing involved data cleaning (ensuring consistency and validity of entries), generation of descriptive statistics of each variable and of CBMS indicators, and conducting cross tabulations. Poverty maps (samples shown in Figures 2 and 3) that show identified needs at community and comarca levels were also created using the CBMS-QGIS software.

**Figure 2: Proportion of population living below the national poverty line per comarca, Nicaragua, 2018**

Around 74% of the population are living below the national poverty line

Source of basic data: CBMS Census, Comarcas Cuatro Esquinas, Tawa, and Wanawas, Nicaragua, 2018
Aside from generating demographic data on the pilot sites, data requirements for the computation of poverty and SDG indicators including construction of a local level multidimensional poverty index (MPI) and the unmet basic needs index (which is the official index to measure poverty in the country) among others were also processed from the CBMS database.

One of the important steps in implementing CBMS is database management. This entails storage, modification, and extraction of information from the database to produce the desired outputs such as reports and maps for dissemination. In the implementation of CBMS, data collected from the census sites are electronically transmitted, stored and accessed by authorized users in the CBMS Portal. Key census results that are processed from the CBMS database are used and presented for discussion with key stakeholders during the validation exercises to ensure accuracy of the data. If there are corrections in the data as a result of the validation exercise, the revised data are then incorporated in the database.

Due to current political centralization of Nicaraguan government, in the short term, the local government is not yet expected to assume the responsibility to maintain and update the CBMS database. However, in the middle to long term, it is envisioned that the lessons from this pilot CBMS initiative would influence the government and other centralized organizations perceptions on the importance, scope and the impact of using local evidences to design more adequate policies to
address poverty reduction. The CBMS database of the pilot sites in Nicaragua is currently maintained by authorized personnel of the CBMS research team of Nitlapan.

2.4. Data Validation

The validation of census results is a vital component in the implementation of the CBMS. It is important to ensure that local leaders and all community members are informed of the results of the census. Furthermore, validation provides an avenue for verifying the accuracy of the data generated by facilitating discussion on the possible reasons behind the findings.

A validation workshop is organized at the comarca and municipal levels. At the comarca validation workshop, community members are invited to attend the workshops organized for every comarca wherein the process of computing for the core poverty indicators is explained in detail. Every indicator is discussed in order to obtain feedback from the community on the implications of the results in terms of program actions needed to improve living conditions in the comarca.

2.5. Dissemination

Main findings from the comarca validation workshops are consolidated and are thereafter presented by the local participants to local stakeholders at the municipal level in a dissemination workshop.

The CBMS results were presented in a session with local organizations to discuss the results and generate reflection on the pertinence of their intervention strategies. Among the participants are the organization manager/director/administrators from cooperatives La Campesina, Comprío and Hermandad Campesina; and NGOs as Agua para la Vida and Nitlapan. The main findings were presented by the 3 local youth who participated in the whole process of implementation of CBMS, as a capacity building mechanism in which these young got empowered of the results and created networks with the organizations representatives.

Moreover, results of the analysis of the situation in the community in terms of financial inclusion and entrepreneurship were presented in a workshop at the local branch of FDL, the biggest financial institution of the study area which was participated in by branch manager, credit officials and supervisors.

3. Uses of CBMS

Data generated from the implementation CBMS in the pilot sites enabled the preparation of a local sustainable development goals (SDG) report for Rio Blanco\(^1\) and became the basis for discussion of

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\(^1\) Romero, M. & Bornemann, G. (2018a)
the poverty status and needs of the community in the context of the SDGs. The use of the CBMS methodology allowed the assessment of the SDGs showing geographical differences while also identifying who and where the poor are. The pilot of the CBMS in the study area in Rio Blanco has represented an enriching process not just for the research team but for other actors involved, especially the group of 20 local youth who participated in it, allowing them to get to know their communities better with a broader perspective. Based on the CBMS-SDG data generated, it was found that the locality still has deficiencies in almost all the dimensions of SDGs particularly highlighting income, education, employment and sanitation as the main challenges for the area.

With the implementation of CBMS in the pilot sites, data for 32 CBMS-SDG indicators at the comarca level across 12 SDGs were generated.

**Table 2: CBMS-SDG Indicators, Nicaragua, 2018**

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>5</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living in households with access to basic services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure</td>
</tr>
<tr>
<td>Goal 2 – Zero Hunger</td>
<td>2</td>
<td>Annual income of small-scale food producers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of agricultural area under productive and sustainable agriculture</td>
</tr>
<tr>
<td>Goal 3 – Good Health</td>
<td>6</td>
<td>Maternal mortality rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of children less than 5 years old who died</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neonatal mortality rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population that died due to chronic diseases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicide mortality rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Death rate due to road traffic injuries</td>
</tr>
<tr>
<td>Goal 4 – Quality Education</td>
<td>2</td>
<td>Proportion of children and young people at the end of primary school (11-13 years old) or secondary school (16-18 years old)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of youth and adults using cellphones</td>
</tr>
<tr>
<td>Goal 5 – Gender Equality</td>
<td>2</td>
<td>(a) Proportion of total agricultural population with ownership or secure rights over agricultural land; and (b) share of women among owners or rights-bearers of agricultural land</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of individuals who own a mobile telephone</td>
</tr>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>2</td>
<td>Proportion of population with access to water services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population using safe sanitation services with hand-washing facility</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>2</td>
<td>Proportion of population with access to electricity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population with primary reliance on clean fuels and technology</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>5</td>
<td>Proportion of informal employment in non-agriculture employment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average hourly earnings of female and male employees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unemployment rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of youth (aged 15-24 years) not in education, employment or training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion and number of children aged 5-17 years engaged in child labor</td>
</tr>
<tr>
<td>Goal 9 – Industry, Innovation, and Infrastructure</td>
<td>3</td>
<td>Manufacturing employment as a proportion of total employment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of small-scale industries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population covered by a mobile network</td>
</tr>
<tr>
<td>Goal 10 – Reduced Inequalities</td>
<td>1</td>
<td>Proportion of people living below 50 percent of median income</td>
</tr>
<tr>
<td>Goal 15 – Life on Land</td>
<td>1</td>
<td>Forest area as a proportion of total land area</td>
</tr>
<tr>
<td>Goal 17 – Partnership for Goals</td>
<td>1</td>
<td>Proportion of individuals using the Internet</td>
</tr>
</tbody>
</table>

In addition, the CBMS data enabled the examination of issues on financial inclusion and entrepreneurship in local context using the case of the rural communities in Rio Blanco (Romero & Bornemann, 2018b).

The CBMS data on the different dimensions of poverty showed the heterogeneities of family's vulnerabilities and the type of entrepreneurial activities they develop. The CBMS data on poverty and SDG indicators together with those relating to entrepreneurship and financial inclusion are intended to show decision makers (governmental and non-governmental entities) on the need to account for possible differentiated interventions and strategies across locations and target groups to have a greater impact. This implies the definition of more appropriate selection criteria to better target the population segments that programs expect to reach, and identify the more pertinent components of the programs and delivery mechanisms particularly for those seeking to promote financial inclusion to consolidate rural women microenterprises.
Apart from the local governments, CBMS data is also intended to be made available to other local stakeholders such as NGOs, cooperatives, microfinance institutions, and governmental departments for input in the design and implementation of policies and interventions. For example, CBMS data can be used to design evidence-based microfinance policies to better address rural women restrictions to access and use credit, which could then be replicated to other territories and for other intervention interests. As such, data from the pilot sites is made accessible to Nitlapan and FDL to reflect on and modify their strategies and interventions in the pilot site.

Moreover, for purposes of conduct of further research, CBMS data can also be made accessible to the academic community. For instance, CBMS data from the pilot sites is available to the Economics faculty and the Territorial Development Master Program of the Central American University in Nicaragua. The data is also available for master and doctoral students of the Institute of Development Policy and Management of the University of Antwerp, Belgium (IOB – UA), which is a partner of the Central American University and particularly of Nitlapan for the development of their theses.

4. Prospects and Strategies for Institutionalization

Due to current political centralization of Nicaraguan government, in the short term, the local government is not yet expected to assume the responsibility to update the CBMS dataset. However, in the middle to long term, it is envisioned that the lessons from this pilot CBMS initiative would influence the government and other centralized organizations perceptions on the importance, scope and the impact of using local evidences to design more adequate policies to address poverty reduction.

One strategy adopted by the CBMS-Nitlapan researchers to further disseminate the use of the CBMS methodology at the local level is working with local leaders including young people who participated in collecting CBMS data in their communities to promote the use of the database in their discussion with municipal council members.

Another strategy to promote the use of CBMS in the country is the organization of a course with the Faculty of Economics and the Faculty of Science and Technology at Central American University that adopts the CBMS as part of research methodology and to teach the CBMS and use it in research process with students. In line with this, a course of research methodology is also being planned for ten days in Rio Blanco to cover the CBMS methodology, the experience from its deployment in selected sites and key findings from the pilot project. This course is offered annually and it has as participant young people from Central American Countries interested in research. Furthermore, Nitlapan is in contact with the University of Cuenca, Ecuador for an exchange program to share the experience on the use of CBMS methodology and explore possibilities of collaboration for further replication and institutionalization of CBMS in Latin America.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

Whereas poverty in Pakistan had been declining up to the late 1980s, it has increased sharply during the 1990s. The government has therefore formulated a poverty reduction strategy whose main elements include a revival of growth, provision of social services and public works programs. An underlying belief is that without community participation, neither can the poor be helped through credit, nor can social services be provided or public works program implemented. It is also understood that the proper monitoring and evaluation of any program is very important for ensuring proper implementation.

Poverty indicators have regularly been monitored in Pakistan through regular Household Integrated Expenditure Surveys (HIES). However, the surveys do not contain adequate information on lower administrative units such as the district, tehsil and union council. With the advent of decentralization, which necessitates the participation of representatives of all levels in designing and approving local development plans, the need for data at these levels has become absolutely essential. The community based monitoring system (CBMS) could be a useful source of data at the lower administrative levels and would provide the concerned authorities with a suitable empirical base for conducting budget allocation exercises (Kemal, A.R, Arif, G.M. and Memon, R., 2003). It was under this context that the pilot implementation of CBMS in selected sites in Pakistan was initiated by the Pakistan Institute for Development Economics (PIDE) in 2003 with support from the PEP-CBMS Network.

Two rural union councils of Punjab province were selected to pilot the CBMS in Pakistan. The National Reconstruction Bureau (NRB) was part of the consultative process particularly in the selection of the pilot area. As the NRB is involved in the implementation of the devolution plan and is in constant contact with the local administration, it made sense to involve them from the very start of the CBMS initiative. Sustainability of CBMS after the pilot phase was also a major concern and that was the basic motivation behind involving the union council administration in the carrying out of the pilot study. As the union council administration is bound to collect socioeconomic data, it is premised that the experience gained by the union council personnel during the piloting of the CBMS would not only help them deliver their job more efficiently but also help sustain the CBMS once the pilot phase is over.

Community based monitoring system is one of the comprehensive key tools in the development research that provides empirical evidence on key social and economic indicators measured at household and individual level. CBMS is a research methodology that evolved to be the most useful in assessing the status of indicators at lowest administrative units. It’s an organized process that involves a census of all the households at local level. The idea is to collect data at this level that truly
represents the poverty and other socio-economic characteristics of the population. CBMS-Network has been working in developing countries and provides the technical assistance in devising country-specific and indicator-sensitive support under Partnership for Economic Policy (PEP).

The CBMS Network through PEP has later supported another project to replicate the implementation of CBMS piloting the tablet based system of data collection for CBMS implementation and using the system as a platform to generate local data to examine issues on youth unemployment and entrepreneurship.

1.2. Local Government Structure

The Devolution plan and the CBMS

In 2002, the government of Pakistan promulgated the Local Government Ordinance. Apart from the fact that administrative power was devolved to lower administrative levels, and that budget allocations were made the responsibility of union council, tehsil and district administration, the ordinance calls for the creation of monitoring committees (MCs) at all administrative levels. The members of these committees are chosen by the members of the local council of elected representatives.

The key role of MCs would be to identify problems at the offices/facilities of the local government and bring these to the notice of the respective Council representative and the concerned administration. The focus of monitoring shall be on service delivery; monitoring mechanisms involve seeking opinion of the public regarding service delivery, and field visits. Reports based on their work will be prepared by MCs every three months.

To the extent that periodical collection of information by elected people has been made into law, this is good news. Nevertheless, it is not clear what sort of data will be gathered by the MCs. A well-defined system of quantitative and qualitative data collection could certainly give the system more definition in terms of indicators, frequency of data collection and provide scope for proper validation by the community. It was in this context, the CBMS can provide planners with an unbiased and focused system of monitoring core indicators (Kemal, Arif and Mamen, 2003).

Local Governance

Community development is much associated with local level governance where development priorities are defined and met locally. In Pakistan, the story of the local government is just like the story of political transitions in Pakistan. The variant history of local government can be analyzed in different eras of Pakistan’s political dynasty. On large, the local government can be divided into two

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1 Drawn from Akhtar, N., Wasim, A., Yamin, F., Amin, H. R., & Farooq, S. (2017). The lynchpin of development in Pakistan: Community Based Monitoring System (CBMS) at grassroots level
main epochs: an epoch of the democratic elected governments; and an epoch of military regimes. Table 1 illustrates the different versions of local governments in Pakistan in the historical context.

Table 1: Local government system of Pakistan in historical context

<table>
<thead>
<tr>
<th>Era</th>
<th>Type of government</th>
<th>Local government act date</th>
<th>Specific characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1947</td>
<td>British colony</td>
<td>Variants, starting from 1688</td>
<td>The concept of self-government, started to manage sanitary and garbage issues at local level. The process kept evolving and 1935 Government of India Act allowed provinces to legislate for their own local governments</td>
</tr>
<tr>
<td>(1959-1969) Gen. Mohammad Ayub Khan</td>
<td>Military</td>
<td>1962-New Presidential Constitution (1962), (General Ayub established local governments in the form of “Basic Democracies”) (BD).</td>
<td>Basic Democracies introduced the Local Government system in Pakistan, but Basic Democracy system was destined to become less a means of local representation and more an arm of the bureaucracy. At the lower level the Local Government is a drill of democracy, and is the source of political education (Saleem &amp; Ahmed, 2012)</td>
</tr>
<tr>
<td>(1979-1985) Gen. Muhammad Zia-ul-Haq</td>
<td>Military</td>
<td>Local Government ordinances 1979-85</td>
<td>The new local governments comprised a hierarchical system of four linked tiers (see Figure I.1). The lowest tier, the Union Council, covered a village population of 8000 to 15000 people and comprised Basic Democrats elected on the basis of adult franchise. The other tiers had some members elected indirectly by these Basic Democrats and some official members nominated by the Government and had officials as Chairmen (Assistant Commissioner or Tehsildar in case of Tehsil Council, Deputy Commissioner, DC, in case of District Council and Commissioner in case of Divisional Council).</td>
</tr>
</tbody>
</table>
| (2001-2008) Gen. Pervez Musharraf | Military            | Local Government Ordinance (2001)               | Zia’s LGO (1979) differed from Ayub’s BDO (1959) in certain important aspects: Zia sought to reduce bureaucratic control by elevating ‘elected’ members as the heads of local councils and by declaring the ‘elected house’ as the controlling authority. This differed from BDO (1959) where the Deputy Commissioner was both the ‘controlling authority’ and the executive head of the District Council. Zia’s LGO also created a legislative rural-urban
divide by defining autonomous local councils for urban areas8 (see Figure II.1) which emphasized rural urban coordination through district councils that had representatives from both rural (Tehsil councils) and urban areas (municipal committees) (see Figure I.1).

It was the second Martial Law Regime of General Zia that implemented elected local governments. These were revived in 1979 under the provincial local government ordinances, which, with amendments, was in operation till 14th August 2001 in Pakistan. Under this ordinance, there were four levels of municipal government in the urban areas: town committees, municipal committees, municipal corporations and metropolitan corporations. Members of the council elect the senior officers of these councils and the controlling authority was the elected house. There was a three-tier system of local government in operation in Pakistan in the rural areas, where Union Councils, Tehsil or Taluka Councils and District Councils were supposed to exist. However, provincial governments had in practice usually abolished the middle-tier, the Tehsil/Taluka level. As a result mainly Union Councils and District Councils existed, which were elected on the basis of adult franchise. The elected members elected the Chairmen of these councils themselves.

The period since 1985 had seen five general elections enabling the people to choose members of the provincial and national assemblies. In the absence of elected assemblies however, local governments were the only popularly elected bodies and thus played important political and development roles.

<table>
<thead>
<tr>
<th>2013</th>
<th>Democratic</th>
<th>Local Government Act 2013</th>
<th>Devolution Plan set up the National Reconstruction Bureau as a think tank. Its mission was to establish the real democracy in the country with the help of reconstructing the institutions of state.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>District Government, Town Councils, Union</td>
</tr>
</tbody>
</table>
Councils, Village Councils and Citizen Community Boards were planned by the National Reconstruction Bureau. The District Assembly, the Nazim, the District Administration, the District Police, District Public Safety and Justice Committee formed the District. Chairmen of all Union councils in a District formed the District Assembly.

The Local Government was based on five ground rules:
- Devolution of political power
- Decentralization of administrative authority
- De-concentration of management functions,
- Diffusion of the power – authority nexus and Distribution of sources

The new System provided a three-tier Local Government structure:
The District Government
The Tehsil Government
The Union Administration

The new LG system was proposed to be established so that individual local governments at urban and rural levels could be formed by empowering them to shoulder the political, administrative and financial responsibilities. The committee recommended the local government’s union council to comprise of a directly elected chairman, vice-chairman, six general members, two female members on reserve seats and one peasant member in the rural union council or one worker member in urban union council on a reserve seat. One youth member and one non-Muslim member on reserve seat where at least 200 non-Muslim voters were registered were also suggested. The district council would consist of all the chairmen of the union councils and shall additionally include indirectly elected individuals (on reserve seats) by the chairman and the members of the rural union councils present and voting. 15 female members, one technocrat, a youth member and five non-Muslim members would also be included in the
council. Metropolitan Corporations shall consist of all the chairmen of union councils in the district and shall include indirectly elected (on reserve seats) by the chairman and the members of the rural union councils present and by voting. 25 females, five workers, three technocrat, two youngsters and 10 non-Muslim members would also be included. Municipal Corporations would consist of all the chairmen of union councils in the area and shall include indirectly elected (on reserve seats) by the chairman and the members of the rural union councils present and by voting. Two worker members, two technocrat members, one youth member and five non-Muslim members would also be included.

Table 2: Composition of local administration at UC level

<table>
<thead>
<tr>
<th>Union Council</th>
<th>Mode of Election</th>
<th>Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Chairman and Vice Chairman, as joint candidates</td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>Six general members</td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>Two women members</td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>One peasant or worker member</td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>One youth member</td>
</tr>
<tr>
<td></td>
<td>Direct</td>
<td>One non-Muslim member</td>
</tr>
</tbody>
</table>

Source: Punjblaws.gov.pk (2017)

In the context of development paradigm that emerged on the eve of the 21st century, no any authority can deny the need to endeavor for social and economic development of the masses because the access to social services is going to be part of basic human rights, e.g. access to free primary education in Pakistan is now the legal right of school age child and must be ensured by the provision educational services by the government.

The 18th Amendment in Pakistan was seen as a milestone that empowered the federating units to prioritize policies according to their needs that are assessed according to local indicators on development. In Pakistan and in provinces as well, no data are collected on key indicators at grassroots level. Three years of passage, provinces are still on conundrum of tackling teething problems in defining jurisdictions, legalities and provincial rights and responsibilities with regard to economic and social subjects (UNPD, 2013). The key players are:
a) National government
b) Provincial governments
c) District governments
d) Local governments
e) National and local Community Based Organizations (CBOs)

The role of national government is to legislate for laws pertaining to local government with best anatomy that fits the social and economic developments agendas and is also compatible with international development practices. Local governments are the only tool to ensure that ‘leave no one behind’ agenda is met. This is in line with the assertion that Common Wealth Local Government Forum made to Common Wealth heads to back up localizing the new development agenda.

18th Amendment left provincial governments as another key player to design and systemize the local governments at provincial level. Now on, in Pakistan, each province has the authority to have its own version of local governments. In overall, the contemporary situation is much reflected from political lens.

District and governments works under typical bureaucratic system with the overall responsibility to ensure peace and stability, revenue collection and others. District governments are part of the country governing system that is insensitive to political change at any level, however local governments come through adult franchise and have specific period to stay in office. According to the ‘Common Wealth’, local authorities form a vital bridge between national governments, communities and citizens and they have a critical role in setting priorities, executing plans, monitoring results and engaging with local firms and communities.

Provincial Governments must empower local government in a more sustainable way. Provincial governments cannot take lead to collect local data at UC level and current human and financial resources at local level are completely inadequate to work with communities to generate data evidence for policy making.

In the absence of sustainable local government system, CBOs, and other public and private organizations like RAI must work to collect, manage, analyze local data, while providing training to available public local human resources and ultimately enabling them to be able to analyze the locally collected data to argue for social development budget.

National and Community Based Organizations play vital role in identifying the policy needs. They can play as a bridge between local governments and communities in need. The best of CBOs can provide is to keep on updated development agenda, prioritizing the tangible goals in relation with international level development and disseminating it to local level through creating awareness, capacity building, research, evaluations and as advocates of social and economic development.
The local government is one of the key determinants of the development that at least assures people to find solution to their development problems. It increases access to public services and integrate the people into the process of development resulting into a society that act for the sustainability of development. The indifference of the population is only possible when they are denied for their rights to participate in the development process and eventually they do not opt to own the process. The importance of local government institutions – especially representative institutions that are answerable to constituencies as small as districts and sub-district units such as union councils and “talukas” – cannot be underestimated for a developing country like Pakistan.

Empowering and investing in the local government is basically a process to create a phenomenon where people are civically responsible and sensitive to the development that is planned and embedded for them. The main issue is the real transfer of powers to prioritize for development in which communities want their levels to be increased like on access to safe drinking water, sanitation and education, health and disaster risk management. This is only possible if communities know about their empirical statuses on key social and economic indicators.

1.3. Review of Existing Monitoring Systems

2. Key Features of CBMS

What are the key components of the system? How does it differ from other existing monitoring systems?

CBMS Pakistan is intended to be a comprehensive monitoring system at Union Council level in Pakistan that covers the key international level development indicators at grassroots level. The components of CBMS Pakistan are:

- A program designed to ensure availability of micro data at grassroots level so that this data is providing reliable information to plan, allocate financial resources, and implement focused development at Union Council level in Pakistan.

- It intends to work closely with public sector departments particularly local and district governments.

- It provides guidance and training to key stakeholders at grassroots level to ensure that program runs sustainably.

- It focuses on multidimensional poverty, hunger and food insecurity, education, mother and child health, and employment as the core development indicators. These indicators are part of MDGs as well as post-2015 development agenda.

- The program equally focuses on women and all indicators are gender sensitive.
This program plans to capacitate government departments to fully take part in it.

What are its expected outputs and outcomes? What are its intended users for Pakistan? Who are the intended users of the system?

- CBMS outputs include availability of key development indicators at Union Council level that annex to overall national and provincial statistics; capacity of the local and district governments to collect and analyze key primary data; enhanced availability of data for prompt and much needed decisions positively impacting lives of communities.

- The outcomes include a tested program covering multiple dimensions of communities under consideration; the ready tools that can be used at any time to develop future community development programs; data and tools available to provide instrumental help towards financial planning and allocation at community level; policy level planning vitalized at community level.

- Setting a benchmark in Pakistan through unified support of both private and public stakeholders to initiate community development with empirical directions.

Given the intended uses of the CBMS to be developed, what types of data will be generated? How frequent will the data be collected?

- The important aspect of CBMS Pakistan is to collect data on already internationally defined and operationalized variables relating to demography, and other socioeconomic variables including education, health and employment. All variables are quantitatively measured and collected through the community census using the CBMS APP tool. Unit of analysis are households and findings of the research are presented in the form of report, community profiles and graphic/digital plotting of households. Normally in Pakistan, the surveys providing statistics on MDGs and other surveys dedicated to poverty analysis are done at yearly basis and they only provide statistics that are representative only at provincial level. This means that no data is available at sub-district and at Union Council level, hence limiting the scope of local planning and budgeting. Most of the government departments get funds based on their yearly administrative and salary requirements.

- As per the constitution and its underlying 18th Amendment, local governments should be empowered to plan and budget locally. The CBMS Pakistan is the only data initiative that is intended to be collected at Union Council level to ensure local level planning and budgeting.
2.1. Adjustment of CBMS Methodology to Pakistan’s Context

2.1.1. Core Poverty Indicators

During the pilot test of CBMS in 2003, the indicators that are part of the NARIMS, to obtain village profile, were included in the CBMS questionnaire. To avoid leaving any important indicator a relatively comprehensive addition was made to the NARIMS’ list of indicators. Poverty indicators that were found to be significant in prior surveys, including MIMAP, Pakistan Socio-economic Survey and Pakistan Rural Household Survey, were also accommodated after a sifting process. Refinements in the final selected indicators could be made later but in the pilot phase of CBMS, all indicators that can impact poverty status have been included in the questionnaire.

Table 1 presents a list of indicators included in the pilot phase.

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demography</td>
<td>Age and sex composition of the population</td>
</tr>
<tr>
<td></td>
<td>Marital status of the population</td>
</tr>
<tr>
<td>Education</td>
<td>Enrolment rates</td>
</tr>
<tr>
<td></td>
<td>Type of schools and distance to it</td>
</tr>
<tr>
<td></td>
<td>Vocational training</td>
</tr>
<tr>
<td>Employment and income</td>
<td>Employment</td>
</tr>
<tr>
<td></td>
<td>Unemployment</td>
</tr>
<tr>
<td></td>
<td>Underemployment</td>
</tr>
<tr>
<td></td>
<td>Household budget deficit</td>
</tr>
<tr>
<td>Health</td>
<td>Infant mortality</td>
</tr>
<tr>
<td></td>
<td>Child mortality</td>
</tr>
<tr>
<td></td>
<td>General state of health</td>
</tr>
<tr>
<td></td>
<td>Number of births attended by trained professional</td>
</tr>
<tr>
<td></td>
<td>Child immunisation</td>
</tr>
<tr>
<td></td>
<td>Coverage of antenatal care</td>
</tr>
<tr>
<td></td>
<td>Coverage of post-natal care</td>
</tr>
<tr>
<td></td>
<td>Contraceptive Prevalence Rate</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Prevalence of malnutrition</td>
</tr>
<tr>
<td>Security</td>
<td>Crime incidence</td>
</tr>
<tr>
<td></td>
<td>Action by law enforcing authorities</td>
</tr>
<tr>
<td>Housing and sanitation</td>
<td>Type of house ownership</td>
</tr>
<tr>
<td></td>
<td>Type of house construction</td>
</tr>
<tr>
<td></td>
<td>Percentage of households having access to toilets</td>
</tr>
<tr>
<td></td>
<td>Percentage of households having access to sewerage facility</td>
</tr>
<tr>
<td></td>
<td>Garbage collection method from households</td>
</tr>
<tr>
<td>Political participation</td>
<td>Number of registered voters and those actually voting</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------------</td>
</tr>
</tbody>
</table>

**Table 2: CBMS Core Indicators, Pakistan, 2015**

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Poorest 20% of the population, measured by Schreiner’s index/Progress Out of Poverty Index®/Poverty Score Card</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty Score Card</td>
<td>Mean value of Schreiner’s index/Progress Out of Poverty Index®/Poverty Score Card</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working poor²</td>
<td></td>
</tr>
<tr>
<td>Hunger</td>
<td>Food secure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food insecure without hunger</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Food insecure with hunger</td>
<td></td>
</tr>
<tr>
<td>Child nutrition</td>
<td>Acute Malnutrition (Severe)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate acute malnutrition (Moderate)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At risk of malnutrition (Normal)</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>Proportion of children under 5 years old who died</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died</td>
<td></td>
</tr>
<tr>
<td>Distribution of population as per PSC categories</td>
<td>Extremely poor/ultra-poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronically poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transitory poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transitory vulnerable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transitory non-poor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-poor</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Literacy Rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primary School Participation Rate (gender parity)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary School Participation Rate (gender parity)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tertiary School Participation Rate (gender parity)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Availability of primary, secondary and tertiary</td>
<td></td>
</tr>
</tbody>
</table>

² Working poor in this study are considered those who are working but they are falling under the first two categories of poverty score card.
<table>
<thead>
<tr>
<th>Category</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Unemployment rate</td>
</tr>
<tr>
<td></td>
<td>Unemployment rate of youth (15-30 years of age)</td>
</tr>
<tr>
<td></td>
<td>Youth Self-employment rate-male</td>
</tr>
<tr>
<td></td>
<td>Youth Self-employment rate-female</td>
</tr>
<tr>
<td></td>
<td>Youth self-employment rate-Overall</td>
</tr>
<tr>
<td>Social amenities</td>
<td>Availability of tap drinking water</td>
</tr>
<tr>
<td></td>
<td>Household without toilet facility</td>
</tr>
<tr>
<td></td>
<td>Households without electricity</td>
</tr>
<tr>
<td>Dependency ratios</td>
<td>Child dependency</td>
</tr>
<tr>
<td></td>
<td>Old age dependency</td>
</tr>
</tbody>
</table>

Pakistan has been using the Poverty Score Card developed by Mark Schreiner (2005) by using the PSLM data 2004-05. This proxy is based on 10 different indicators that provide information on demography, education, and housing characteristics.

This indicator has also been used by World Bank and Pakistan Poverty Alleviation Fund. The most recent user is Benazir Income Support Program (BISP) which is Pakistan's largest social protection program running across the country.

### 2.2. Data Collection

#### 2.2.1. Data Collection Instruments

**Pilot Phase**

Questionnaires were the main tools for data collection. Three questionnaires were made for the pilot phase of CBMS in 2003 which included (1) Male questionnaire (2) Female questionnaire (3) Community questionnaire. For the sake of interest in gender dimension to different life conditions, certain sections, like household health, were included in both sex questionnaires, otherwise men and women were asked different questions or questions regarding different age/sex groups in the household.

After finalization of CBMS indicators, CBMS Pakistan piloted project that was launched in Mandi Bahuddin and Rawalpindi districts. The key government departments and other local stakeholders including civil society organizations were invited to be the key audience and beneficiaries. The government departments who work with and for the communities were invited to take part in data
collection training that held in each of the districts. In this training, the data collection team comprises of data collection staff of Research Analytics International and local/district governments. The data was collected from each of the households in selected communities through a census using the CBMS APP tool.

CBMS tools: CBMS supports collection of data through use of census questionnaire.

The questionnaire is designed to generate the core CBMS indicators. Mobile based data collection techniques were used to make the data collection phase efficient and fast-track. The mobile-based data collection application, referred as the CBMS Accelerated Poverty Profiling (APP), was developed by CBMS Core Team at Manila and technical training was provided to team members of CBMS Pakistan.

The CBMS data collection through mobile based technology using the CBMS Accelerated Poverty Profiling (APP) enabled the CBMS Pakistan team to more efficiently process the data.

2.2.2. Identification and Training of Enumerators

During the pilot implementation of CBMS in 2003, attempt was made to use community capacity and initiative to select the interviewers and monitoring team in the field to carry out the survey. The PIDE research team supervised the activity in collaboration with local monitoring teams from the sites to keep a watch on the progress of the survey and make them the part of the whole process. The selected enumerators and monitoring personnel included members of the union council monitoring committee, and local educated youth and teachers. A minimum qualification of bachelors (BA/BSc) was set for being selected as enumerators. Having any prior experience of conducting social surveys was considered a bonus. The selected enumerators were given Rs. 400 (a little over $6.50) per day. This payment was introduced to keep the interest of the enumerators alive, ensuring the quality of the collected data.

Before the start of the data collection, a five-day training was organized for the interviewers at the respective survey sites in Dhamyal UC and GB42 UC. The first phase of the training entailed a discussion on the aims and objectives of the survey, understanding of the survey techniques, and educating them on the field ethics. This was followed by pre-testing of the questionnaires at the two survey sites by the respective teams, and their feedback was taken on the administration of the questionnaires.

Site supervisors were designated to conduct the community questionnaires. Their usual respondents were councilors of the village/union council. With regard to household questionnaire, it was considered desirable that both male and female interviewers conducted the questionnaires simultaneously that is male interviewing the male and female interviewing the female of the household. Unavailability of both at the same time meant that the interviewer had to make two or three visits to the same household. More than three visits were not recommended in the survey design. Survey population was generally cooperative with the interviewers but certain respondents
were apprehensive in letting the interviewers enter their homes—some were convinced by telling them the objectives of the survey while some still refused to talk. Before the questionnaire was forwarded for entry, the supervisor was supposed to check the filled questionnaire for any inconsistencies or missing information. A maximum of 4 questionnaires per head were allowed to the enumerators, taking them over 3 months to do a census of the two selected union councils for CBMS Pakistan pilot study.

2.2.3. CBMS Census Sites

Pilot Phase

The project is working in two districts of the Punjab Province which are Mandi Bahauddin and Rawalpindi. Pakistan has more than fifty percent share of its population dwelling in rural areas and same is the case of province of the Punjab (69 percent in 1998). Since this is a pilot project, it focused on both rural and urban areas in order to cover the selected indicators that can be analyzed by locality. One union council is rural areas of Rawalpindi district is selected and one urban ward in Municipal Committee of Mandi Bahauddin is selected.

According to 1998 census, the total population of the district Mandi Bahauddin was 1.16 million and for Rawalpindi district, it was 5.43 million and the population growth rate were 1.87% and 3.2% respectively. The following table illustrates the main demographic indicators in the historical context of the project districts.

<table>
<thead>
<tr>
<th>Table 2: Demographic profiles of project districts (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mandi Bahauddin</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>1981</td>
</tr>
<tr>
<td>1988</td>
</tr>
<tr>
<td><strong>Rawalpindi</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>1981</td>
</tr>
<tr>
<td>1998</td>
</tr>
</tbody>
</table>

Source: District census reports, 1998
2.3. Data Processing

*Pilot Phase*

The data collected from the CBMS census were encoded in EXCEL. The original survey design envisaged entering and processing of data at the union council level, but non-availability of computers at that time altered this decision. Data were processed, analyzed using Excel and SPSS by the local researcher team at the PIDE.

*Expansion Phase*

Data was managed from the CBMS Portal. The data was processed and analyzed by the CBMS Pakistan team at Research Analytics International (RAI) using STATA.

2.4. Data Validation

Data validation: Once the CBMS data was processed and preliminary results were produced, the data was validated through group meetings within the community in order to ensure if data truly represents the community.

2.5. Database Management

The local government departments are fully trained to analyze and utilize the CBMS Pakistan raw data. The raw data is also available to all interested parties for further analysis and policy level evidence generation. The data and related documentations including published reports, policy briefs and research papers are available at www.researchanalyticsintl.org. The CBMS database is managed by Research Analytics International. The data is also available with PEP-CBMS Network, Local and District Governments at district level.

3. Uses of Data

*Pilot Phase*

Since CBMS Pakistan was implemented in close consultation with the Local Government Departments (LGDs), it was evident that LGDs were looking forward for data at village level. Since the strength of the CBMS data is linked with its methodological approach based on census, it has all reasons to be authentic. Along with the generation of data through CBMS by providing all the data...
collection tools, manuals and an exposure on how to effectively collect data, the local CBMS Pakistan team from PIDE also trained LGD employees on how to use the data.

The main goal of the project was to provide localized grassroots level data that can provide efficient source of information for local planning, budgeting and policy making, particularly after the 18th Amendment in Pakistan's constitution empowered provinces through decentralization of most of social and economic development departments.

The following flow chart elaborates the CBMS data usage as per the CBMS Pakistan project objectives.

**Figure 1: Key objectives of CBMS Pakistan**

![Flow Chart of CBMS Pakistan Objectives](image)

CBMS Pakistan data is not only a complete comprehensive picture of the socio-economic indicators at grassroots level, it also fills the data gap in the Punjab Youth Policy 2012 because it is the only data source at village level on youth employment and entrepreneurship. This database provides statistics on overall youths’ educational achievements, their employment situation and whether they are pursuing entrepreneurship as the only solution to their unemployment or as a choice.

The pilot phase of the CBMS survey in Pakistan initiated in 2003 was implemented by the Pakistan Institute of Development Economics (PIDE). Islamabad, but the plan is to shift the survey design, with modifications, to the local governments. Pakistan is going through a transitional phase of decentralization since 2000 when the Devolution Plan was outlined, and then implemented in the 2001 Local Government Ordinances.

Under the old system of government, the provinces administered the districts and tehsils directly through the bureaucracy at the division, district and tehsil level. The Devolution Plan and Local Government Ordinances proposed to introduce wholesale transformation in Pakistan's system of government, especially at the local level. Divisions were abolished, and instead a three-tier local government structure comprising of three categories of local government, districts, tehsils and unions, was introduced. Elected Nazims and Naib Nazims head each union, tehsil and district local
government, and there are political linkages between the three tiers. These elected bodies ensure that planning and development is carried out in accordance with local needs. They also monitor the functioning of local administrations.

Devolution in Pakistan follows the principle of subsidiarity, whereby all functions that can be effectively performed at the local level are transferred to that level. This has meant the decentralization to the districts and tehsils of many functions previously handled by the provincial governments. Alongside administrative and political decentralization, provisions have been made for transfer of funds to the local governments so they can carry out their planning and development functions effectively.

Fiscal decentralization is the heart of any devolution exercise and under the Devolution Plan in Pakistan, budget allocations are the responsibility of district, tehsil and union council administrations. This new setup requires formation of neighborhood/village councils in urban and rural areas as well. As stated earlier, among the many functions of the union council administration collection and maintenance of statistical information for socio-economic indicators entails an important function.

Likewise, the village/neighborhood councils, under this plan, are to assist the union council administration in carrying out these functions, along with taking steps to improve the security of its population and organizing sports, cultural and recreational activities. Collecting socio-economic data and selecting sites for providing municipal services, in cooperation with union council administration, entails an important function of the village/neighborhood councils.

To compile and consolidate the data collected by the union council and the village/neighborhood councils, the National Reconstruction Bureau (NRB) has developed National Reconstruction Information Management System (NARIMS). The primary focus of NARIMS is to store, transform and display spatial data for: financial management, planning and development purposes, evaluation of existing schemes and for performance incentives.

CBMS fully complements the devolution plan, as envisaged in the Local Government Ordinance, by decentralizing the information collecting procedure and evolving a community based monitoring system. The CBMS and the indicators found relevant in it, after the piloting phase, have been proposed to be incorporated in the information that is to be collected by the union councils and village/neighborhood councils, making the whole exercise more beneficial for need assessment, and planning, monitoring and evaluation of poverty reduction projects.

The prescribed role of local governments already includes collection of socio-economic data at the lowest level, and CBMS can help formulate a more comprehensive and meaningful list of indicators to be included in the data to be collected. Thus, by incorporating the indicators considered important in the CBMS survey to the list of indictors formulated by the NRB for collection at the local level, we can take the first step towards making efficient fiscal decisions.

The provincial government intimates the total budget available to the local government, i.e. development and non-development. The district governments distribute these funds to the tehsils
and unions. To carry out the exercise of funds distribution, the tehsil and the union administration provides estimates of their revenues and expenditures to the district governments. Based on these estimates the district government determines the total share of each tehsil/union.

Once the share is intimated, the tehsil and union administration develop their own budgets for development and non-development. The development budget amount is usually the amount left over after budgeting for the recurring costs and liabilities. This is where the data generated through CBMS can be of use in particular.

**Examining Youth Unemployment and Entrepreneurship**

CBMS can also be used as a platform to generate disaggregated data to examine policy issues relating to youth unemployment and entrepreneurship development (see Akhtar et al, 2017). Using CBMS data collected from selected sites in Pakistan, Akhar et al was able to show how CBMS can be used for profiling the youth labor force, understand reasons for unemployment, and explore potentials for entrepreneurship.
References


Chapter 4
CBMS in Africa

South Africa

1. Context and Rationale for the Implementation of CBMS

1.1. Background

In South Africa, years of active discriminatory policymaking, segregation, and neglect have resulted in high levels of poverty and inequality. Poverty and inequality in South Africa result from a complex history of the apartheid system of segregation during the 19th century, where race influenced studies of poverty as official statistical categories were combined with racial attitudes in the collection and presentation of data (Magasela, 2005). This condition is rampant especially in townships and rural areas characterized by extreme wealth on one hand and desperate poverty on the other (Woolard & Klasen, 2004). According to Landman and Hausermann (2003), the eradication of poverty has been one of the top priorities for the government of South Africa since its independence in 1994. Poverty monitoring surveys in South Africa is significantly institutionalized both in design and coverage at the national level; however, the non-existence of any institutional mechanism to generate poverty data at the local level remains a significant constraint in designing an effective poverty reduction agenda. Although the government of South Africa conducts regular poverty monitoring surveys, the macro-level analysis camouflages differences in poverty that are based on district and location municipal conditions. These differences can be explained in terms of the general multidimensional nature of poverty in location municipalities. An appropriate multi-dimensional poverty measuring design and methodology are therefore required for an effective policy decision that would improve the lives of poor individuals and households. Thus, while poverty was originally measured exclusively in monetary terms and in terms of income, its conceptualization and measurement has recently extended to encompass the ability of individuals and households to meet their basic needs (Oosthuizen, 2011).

The implementation of a community-based monitoring system (CBMS) in South Africa proposed by Oloo, May, and Kadymatimba (2010) aims to strengthen the capacity at the district, local municipalities and ward levels to regularly collect, classify and incorporate poverty and socio-economic data in implementing local development plans. Participation of grassroots community in their own development is a fundamental development agenda for the South African Government therefore; the Municipal Structures Act of 1998 that opened the means for establishing ward committees as drivers for participation was enacted. The Municipal Systems Act (2000) provided a framework for people to participate in budgeting processes and in the development of integrated
development plans. Although some local municipalities have developed integrated development plans, very little has been achieved.

The adoption of the CBMS methodology in South Africa, initiated under a Partnership of Economic Policy Network (PEP) supported CBMS project implemented by the University of Venda, was pilot tested in selected sites in Limpopo Province. The CBMS initiative intends to develop a comprehensive community level multi-poverty monitoring system that would capture data on pockets of poverty at the municipal, ward and village poverty level, analyze and produce reports that would facilitate good planning, budgeting, highlight duplication of services and promote an informed multidimensional poverty alleviation strategies and impact.

Evidence-based decision making on poverty reduction is increasingly becoming a paramount best practice, which many countries including South Africa embrace. Reyes and Due (2009) argue that the lack of appropriate local data about the poor in majority of developing world, including South Africa, hinders development planning, programs, and constrains efforts to monitor change. In addition, the definition of universally agreed definition of poverty remains the subject of some debate amongst policy analysts (Scott, 2005). Strengthening the evidence base of policymaking in developing countries has always been important. However, more than 55 countries either lack information on the share of the population at grassroot level living in poverty or have no data on poverty trends (Scott, 2005). To effectively tackle issues on poverty, there must be a consistent monitoring framework that revolves around rationalizing monitoring mechanisms (Department of Rural Development and Land Reform [DRDLR], 2008). Community Based monitoring tool provides a consistence poverty monitoring framework for local planning, budgeting and implementation at Ward and village levels.

The South African Constitution of 1996 created space for Integrated development planning to ensure sustainable provision of services, promote social and economic development, promote a safe and healthy environment, encourage involvement of communities, and give priority to the basic needs of communities (Integrated Development Plans [IDP], 2012). This study was an attempt to implement a community based multidimensional poverty measuring and monitoring system design and methodology in Limpopo province starting with Mutale and Tzaneen local municipalities.

Furthermore, the Municipal Structures Act of 1998 and Municipal Systems Act of 2000 provided a framework for people to participate in budget processes and formulation of Integrated Development Planning. However, to date, the involvement of grassroots community in decision-making processes has not been successful due to lack of appropriate poverty targeting and a continuous community-based poverty monitoring systems (IDP, 2007). The non-existence of any institutional mechanism to generate and monitor poverty data at the local government structure levels remains a significant constraint in designing an effective poverty reduction agenda. Moreover, efforts and initiatives aimed at promoting the implementation of integrated development planning process are beset by various challenges including the lack of adequate designs and tools to capture conditions at village and ward levels (IDP, 2007).
1.2. Local Government Structure

The South Africa local government structure is decentralized making it conducive to the implementation of the CBMS. The local government structure is dealt with in terms of the Municipal Structure Act 117 of 1998 which sets out the categories and types of municipalities.

Municipalities are required in terms of Chapter 4 of the Municipal Systems Act to develop a culture of municipal government that complements formal representative government with a system of participatory governments. Municipalities must therefore involve communities in the process of reviewing and implementing their Integrated Development Plans.

The Municipal Systems Act (MSA) (Act 32 of 2000), on the other hand requires that municipalities develop Integrated Development Plans (IDP) that gives an overall framework for development and annually reviews (IDP 2007/2008). The South African Constitution of 1996 created space for integrated development planning to ensure sustainable provision of services, promote social and economic development, promote a safe and healthy environment, encourage involvement of communities, and give priority to the basic needs of communities (IDP, 2012). The White paper on Local Government considers the integrated development planning process as an instrument aimed at creating room for municipalities and communities to engage each other; aligning scarce resources around agreed objectives and programmes and prioritizing the essential needs. It is the objective of CBMS to support the Mutale Local Municipality in accomplishing this goal.

The Municipal Structures Act of 1998 and Municipal Systems Act of 2000 provided a framework for people to participate in budget processes and formulation of Integrated Development Planning. However, the involvement of grassroots community in decision-making processes has not been successful due to lack of appropriate poverty targeting and a continuous community-based poverty monitoring system (IDP, 2007). The non-existence of any institutional mechanism to generate and monitor poverty data at the local government structure levels remains a significant constraint in designing an effective poverty reduction agenda. Moreover, efforts and initiatives aimed at promoting the implementation of integrated development planning process are beset by various challenges including the lack of adequate tools to capture conditions at village and ward levels. (IDP, 2007). Community Based monitoring is a tool that promotes the implementation of an effective planning and prioritization of projects in Ward and village levels. The above challenges highlight the need for a tool that is able to generate and monitor multidimensional poverty data at local government level. Community Based monitoring tool capture multidimensional poverty data at households, village and Ward level therefore enhancing local government planning, prioritization of projects at these levels. Setting up a community–based monitoring tool would provide timely data at the local level and accurately diagnose the causes and extent of multi-dimensional poverty in order to formulate appropriate policies and intervention strategies.

There are 231 local municipalities and each municipality is broken into Wards and further into Villages. Communities are represented by a Ward councilor. Local municipalities also form part of

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The district municipality in their area. District municipalities are made up of a number of local municipalities that fall in one district. District municipalities administer and make rules for a district which includes more than local municipality. There are 46 district councils in South Africa and 4 to 6 local municipalities that fall under one district council.

The purpose of district municipalities and local municipalities sharing the responsibility of local government in their area is to ensure that all communities, particularly disadvantaged communities, have equal access to resources and services.

The local sphere of government in South Africa consists of municipalities, which must be established for the whole of the territory of the Republic. The executive and legislative authority of a municipality is vested in its Municipal Council. A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation, as provided for in the Constitution. The national or a provincial government may not compromise or impede a municipality's ability or right to exercise its powers or perform its functions.

The objectives of local governments are:

a) to provide democratic and accountable government for local communities;

b) to ensure the provision of services to communities in a sustainable manner;

c) to promote social and economic development;

d) to promote a safe and healthy environment; and

e) to encourage the involvement of communities and community organizations in the matters of local government.

A municipality must:

a) structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community and to promote the social and economic development of the community; and

b) participate in national and provincial development programmes.
**Municipalities in co-operative government**

The national government and provincial governments, by legislative and other measures, must support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and to perform their functions.

The Community-Based Monitoring System (CBMS) was therefore a key tool for linking poverty data to the national, provincial and district levels through the local municipal structure. The local municipal structure is in charge with the responsibility to administer, budget and plan in order to give priority to the basic needs of the community, promote social - economic development of the community and to participate in the national and provincial development programmes.

Community-based monitoring tool sought to address the above gaps by providing timely data at the local level and accurately diagnosing the cause and extent of multi-dimensional poverty in order to formulate appropriate policies and intervention strategies. It offers grass root level simple and easy tools to collect data on poverty indicators, highlight the impact of strategies, and determine the trend of multi-dimensional poverty per ward and villages. Community-based monitoring is an attempt to build and strengthen the capacity of local planners and program implementers for an improved transparent system of evidence-based resource allocation and governance.

The basic economic macro-economic policy of the South Africa government known as Growth, Employment and Redistribution (GEAR) was a macroeconomic strategy adopted by the Department of Finance in 1996 as a five year plans aimed at strengthening economic development, broadening of employment, and redistribution of income and socioeconomic opportunities in favor of the poor. GEAR remains government policy (Knight, 2001). The basic social development policy, the Reconstruction and Development Programme (RDP), addressed needs such as housing, land, health, education and services (Erwin, 2001). A key aspect of the RDP was that it linked reconstruction and development. The RDP recognized that all the problems (lack of housing, a shortage of jobs, inadequate education and health care, a failing economy) are connected (Knight, 2001). United Nations Development Programme (UNDP) in South Africa’s work on poverty reduction governed by several internationally agreed frameworks such as the Millennium Declaration, the MDGs, and the International Development Goals.

Our core services to support national efforts to reduce poverty and inequities.

### 1.3. Review of Existing Monitoring Systems

As part of the Poverty Reduction Strategy (PRS) initiative, countries have been developing monitoring systems with the objectives of tracking impact on poverty. However, poverty monitoring is more than the measurement of poverty trends or the analysis of poverty profiles (National Planning Commission [NPC], 2011). May (2001), explained that monitoring also take into account the

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inputs made by governments and other stakeholders in the interventions that are intended to reduce poverty. In a recent review of more than 40 national poverty studies, May, (2001), found that in practice, poverty is recognized as being multidimensional. National Policy Commission proposed a poverty line of R 499 per month (NPC, 2011). Much of government work aimed at addressing poverty and ensuring a better life for all through creation of economic opportunities and enabling or empowering communities and individuals to access these opportunities (DRDLR, 2008). This is reflected in the types of policies and strategies adopted by The South African government as well as in the spending on social policies.

Poverty and inequality in South Africa result from a complex history of apartheid system of segregation during the 19th century, where race influenced studies of poverty as official statistical categories were combined with racial attitudes in the collection and presentation of data (Magasela, 2005). Investigation into the levels of poverty in South Africa begun with the first Carnegie Commission of Inquiry during the Great Depression in the year 1928 (Magasela, 2005). A Second Carnegie Commission of Inquiry was commissioned in the early 1980’s due to various concerns about the growing levels of poverty (Studies in Poverty and Inequality Institute [SPII], 2005). In 1993, African National congress commissioned the World Bank to conduct statistics on living standards, to determine a definitive assessment of the extent of poverty in South Africa (Magasela, 2005). This work resulted into a tradition of documentation, research and analysis into income levels and causes of poverty (Hirschowitz, 2000; Woolard & Leibbrandt, 2001, 2006; Statistics South Africa, 2005).

After 1994, a number of seminal reports on poverty were commissioned by various bodies, as part of a national commitment to eradicating poverty such as Key Indicators of Poverty in South Africa (1995), the Participative Poverty Assessment South Africa Report (1998) and the Poverty and Inequality Report (1998). Over the past years, political interest sharpened the focus on poverty measurement and data sources regarding the extent to which poverty had increased or decreased in South Africa since 1994 (Bhorat & Kanbur, 2005). Moreover, this interest subsequently led to numerous studies on the extent to which income poverty levels had changed overall during the first years of democracy (Agüero et al., 2006; Bhorat & Kanbur, 2005; Leibbrandt et al., 2004). Several policies and frameworks geared towards poverty reduction were adopted by South African government. Furthermore, several studies were conducted on the extent to which various strategies had reduced with specific focus to poverty lines. In addition, various structures and mechanisms were put in place to monitor development and poverty status in the country.

It is worth noting that South Africa has a commitment to various national and international bodies to measure and monitor poverty to which it has to comply. Some of these commitments include; being a signatory to the 1995 Copenhagen Declaration which emerged from the United Nations World Summit on Social Development. In terms of this Declaration, signatories undertook to develop a country specific measure of poverty by 1996. South Africa also has obligations in terms of the United Nations Millennium Development Goals to halve poverty and unemployment by 2015 (Statistics South Africa, 2007c).

The first Living Conditions Survey (LCS) was conducted by Statistics South Africa between September 2008 and August 2009. The main aim of this survey was to provide data that would contribute to
better understanding of living conditions and poverty in South Africa and for monitoring levels of poverty over time.


The first poverty line constructed in South Africa was the Poverty Datum Line which was developed in the 1940's (Magasela, 2005). Poverty Datum Line was made up of the Primary Poverty Datum Line which consisted solely of the cost of food, clothing, cleansing materials and fuel and light, and the Secondary Poverty Datum Line which in addition made provision for the cost of accommodation and transport for the breadwinner (Franklin, 1967). The Household Subsistence Level developed at the University of Port Elizabeth included no provision for medical expenses, education, savings, holidays, recreation, insurance, buying household equipment and any transport beyond that of the breadwinner going to and from work. Moreover, the process of setting of poverty lines in general made no provision for public consultation or comment about the appropriateness of their values, despite the fact that many employers based their wages on these poverty lines.

Currently, Statistics South Africa conducts the Income and Expenditure survey (IES) at an interval of every 5 years. The survey provides multi-topic household surveys which form sources of information for measuring and understanding poverty in the country (UN, 2005; May, 2001). For example, Statistics South Africa has conducted 4 nationally representative post-apartheid income and expenditure survey (IES). The survey is the main source of data for most poverty measures used in South Africa for money-metric dimension. Furthermore, surveys undertaken with data from Statistics South Africa include; Labor Force Survey used to measure and monitor formal employment increase, unemployment working-age adults. Data from the General Household Survey used to measure and monitor children from poor households dropping out of school (Statistics South Africa, 2007b). The community survey undertaken in 2005 was used to assess government services and the number of poor households that still had no piped water on site and electricity. Another useful set of data is the Census Series which was used to measure poverty at small area level (Tarozzi & Deaton, 2009).

Other household surveys included the annual General Household Survey and the Labor Force data used in exploring other dimensions of poverty for example hunger, employment levels and consequently earned incomes (Statistics South Africa, 2007a, 2007b). In addition the core expenditure module was traditionally designed to collect consumption data to update the Consumer Price Index basket of goods and service, with the addition of carefully structured modules the survey became a comprehensive source of data for poverty measurement in the country (UN, 2005).
above empirical information is an indication of the effort that the government of South Africa towards assessing poverty status in the country. South Africa Local government requires a tool that would looks at multi-dimension poverty status across villages and at household levels in order to come up with effective policy interventions at grassroots levels.

According to Statistics South Africa (2007b), the government has no consistent and agreed national poverty measure, hence analysts have developed various incongruent indices, each based on particular assumptions and leading to sometimes confusing or contradictory conclusions. For example, Poverty and Inequality Report (PIR), which considered both money-metric measures of poverty as a standard proxy for poverty, but was also used as a broader, composite indicator to deepen understandings about the comprehensive manifestations of poverty deprivation (May, 1998). Indicators of deprivation included lack of access to key services such as electricity, water and sanitation, or lacking decent housing (Mattes et al., 2003).

Nine Provincial Indices of Multiple Deprivation for South Africa was produced at ward level using 2001 Census data (Noble et al., 2006a, 2006b). The conceptual model behind each Provincial Index of Multiple Deprivation (PIMD) was based on the idea of distinct one-dimensional domains of deprivation which can be recognized and measured separately. The domains included; Income and material, employment, health, education and living environment deprivation. Provincial Indices of Multiple Deprivation was created using 13 indicators from the 2001 Census, and provides a tool for people to identify the most deprived areas within each province.

Other South African composite indices included; Klasen’s Deprivation Index for 1997 and 2000 Provincial-level Development Indices comprising a Household Infrastructure Index and a Household Circumstances Index. (Hirschowitz et al., 2000). Four magisterial district-level Deprivation Indices which focus on the relationship between deprivation and health inequalities (McIntyre et al., 2000). South Africa’s first national longitudinal panel survey, on the National Income Dynamics Study, an integrated qualitative and quantitative survey aimed to track changes in living standards and social mobility (Southern Africa Labour and Development Research Unit [SALDRU], 2008). The Household Subsistence Level (HSL) provided three cost scales to meet nutritional demands for different age-gender groups. The food items were used to design the food poverty line for a male of over 19 years old per month (Woolard & Leibbrandt, 2006).

The United Nations Development Programme on the other hand, developed a series of indices used for South Africa poverty measurements. The Human Development Index included three equally weighted indices, namely the life expectancy index, the educational attainment index and the gross domestic product index (United Nations Development Programme [UNDP], 2003). The Human Poverty Index measured the distribution of progress and the backlog of deprivation in the same dimensions of development as the Human Development Index, namely longevity, knowledge and economic positioning. The Gender Empowerment Index measured gender equality in terms of political participation and economic opportunities. (UNDP, 2003). Moreover, the Service Deprivation Index measured progress and existing backlogs in access to basic services looking at seven dimensions of basic services, namely housing, energy for cooking, heating, lighting, water, toilets and refuse removal (UNDP, 2003).
The above empirical literature is a demonstration of the magnitude of indicators that have been used to measure poverty in South Africa. The decentralized structure of the South Africa local government demands for accurate and timely data for poverty targeting, basic services delivery, identification of eligible beneficiary, budgeting and for the implementation of development projects to the local communities (Statistics South Africa, 2007a). However, Statistics South Africa conducts sampled Income and Expenditure survey (IES) every 5 years providing Multi-topic household surveys which form the main source of information for measuring and understanding poverty in the country. The survey does not usually correspond to the geographical disaggregated information needed at the local government structures.

**Assessment of Strengths, Weaknesses, and Gaps**

Although Poverty measuring methodology is institutionalized at national government levels as indicated above, not much is known about the nature and levels of multidimensional poverty at local government levels nor is there adequate scientifically generated information on how effective poverty reduction strategies are to be implemented at local government levels especially at ward and village levels. This shows that there is a gap in knowledge on the effective strategies that could be adopted in ward and village level environments. Despite the efforts made by the South African government to conduct regular poverty monitoring surveys its efforts can best be regarded as limited and isolated. This is due to the fact that the data is samples. Moreover, the macro-level analysis camouflage differences in poverty based on district and local municipal conditions.

According to Scott (2005) lack of information on the share of the population living in poverty or data on poverty trends at village and household levels hinders evidence-based policy making in about 55 developing countries. To effectively tackle issues on poverty, there must be a consistent monitoring framework that revolves around rationalizing monitoring mechanisms (DRDLR, 2008). The community-based monitoring system provides a consistent poverty monitoring framework that enhances local planning, budgeting, and implementation at ward, village, and household levels. Furthermore, the community-based monitoring system (CBMS) addresses these gaps by providing timely data at the local level, accurate diagnosis of the cause and extent of multi-dimensional poverty, thus enhancing appropriate policy formulation and intervention strategies.

As indicated above, Statistics South Africa conducts the Income and Expenditure survey (IES) every 5 years providing Multi-topic household surveys which form the main source of information for measuring and understanding poverty in the country. The decentralized structure of the South Africa local government demands for accurate and timely data for poverty targeting, basic services delivery, identification of eligible beneficiary, budgeting and for the implementation of development projects to the local communities, however, the national poverty surveys and census use sampling designs that do not usually correspond to the geographical disaggregated information needed at the local government structures. CBMS is an organized way of collecting ongoing or recurring information at the local level to be used by local governments, national government agencies, NGOs, and civil society
for planning and implementing local development programs, as well as for monitoring and evaluating their performance.

According to Reyes and Due (2009), “decentralization of public functions in and of itself does not assure the necessary conditions for poverty reduction, especially where institutional and legal frameworks are weak, political will is lacking, and there is little public accountability”. CBMS is an organized way of jointly collecting ongoing or recurring information at the local level to be used by local governments and conveying this information to policymakers through workshops and policy briefs.

The Municipal Structures Act of 1998 and Municipal Systems Act of 2000 provided a framework for people to participate in budget processes and formulation of Integrated Development Plans (IDPs). However, to date, the involvement of grassroots community in decision-making processes has not been successful due to lack of appropriate poverty targeting and a continuous community-based poverty monitoring system. CBMS is grounded in the principle that poverty can best be understood through the lives and experiences of the poor themselves. Furthermore, CBMS tracks poverty and development at the household level at regular intervals through a set of basic indicators. The income and expenditure-based approach presents only one of many dimensions to the measurement of wellbeing in South Africa (Bhorat & Kanbur, 2006). Magasela (2005) argues that there is a need for poverty research to focus more keenly on the use of indicators of multiple deprivations in South Africa rather than absolute or minimalist income based poverty lines, to enable government departments to be true to the realization of their constitutional mandates. CBMS would therefore be an appropriate supplementary tool for collecting enough data that address the above shortcoming.

In South Africa, the relative poverty line is often set at the level that includes people living below 40% of national income, with those living below 20% as being very poor. Internationally, however, such poverty lines are more typically defined as people or households living below a percentage of median income. The most common units of measurement for poverty lines are either individuals or households. Measuring poverty levels of individuals has been criticized in the past for the fact that it cannot take into account economies of scale (SPII, 2005). The CBMS methodology highlights dimensions of poverty other than income, the characteristics of the poor who they are, where they live, and what factors contribute to their poverty in order to address the poverty. Community Based Monitoring (CBMS) is a poverty-monitoring system that is adapted to local contexts and capacities, conducted by local researchers, and intended for local-level planners. The system captures the various dimensions of poverty in an ongoing, dynamic way, and allows the poor themselves to validate the information in collaboration with local officials and planners. This makes it easier to diagnose the extent and nature of poverty, to formulate appropriate responses (Reyes & Due, 2009).

The system is developed in consultation with local government officials, community representatives, and other stakeholders, according to the specific features of the locality in which it would be administered. It demonstrates the value of the system for local poverty monitoring and local-level planning to both local government officials and community representatives. The process of data collection build capacity and empower local officials and communities as they became aware of their economic and social conditions. National Plan Vision 2030 mission sought to eliminate poverty and
reduce inequality in South Africa. In-spite of the above efforts South Africa still face mixed results and continue to face serious poverty-related challenges. Efforts in the formulation of strategies and policy options, viable mechanisms have yet to be established to evaluate effects of programme implementation and monitoring impact on poverty and service delivery at local government levels.

2. CBMS Design

2.1. Key Features of CBMS in South Africa

The consultation process in then referred to as Mutale local municipality before the current restructure continued throughout the data collection period. The CBMS South Africa team assigned to facilitate engagements in Mutale Local Municipalities held a series of meetings with key stakeholders within the pilot sites. This was designed to create awareness and secure support for planned CBMS implementation. Literature review assisted with obtaining supporting secondary data. All policy documents in the Internet and materials obtained from both district and local municipality were reviewed.

During the consultation meeting, the performance management team in Mutale local municipality explained that there was a problem with service delivery due to lack of information at the ward and village levels. They said that information produced by Statistics South Africa was too aggregated and the time span for data collection was too wide making the information inadequate for effective decision-making. The municipality explained that they needed a methodology that would assist in tracking the needs of the local community by identifying and targeting the right beneficiaries.

In Mutale Local municipality, meetings were held with the local economic development offices in the district to orient them on CBMS and plan to undertake the exercise in Mutale local municipality. A meeting was also held with the planning teams who are in charge of national surveys and planning for the activities within the district for various reasons. The first reason for these meetings was to assess the challenges currently faced in the planning process and to determine their buy in to the proposed CBMS methodology. The second was to find out the challenges and constrains currently faced at the district and local municipality levels. The third was to get an approval from the speaker to go ahead with consultations at the local municipality level.

The second part of the consultation meetings were held with the Mayor, Local economic development officer, and Integrated development planning teams. The meetings had four objectives. The first meeting was to orient the team and get approval to undertake the exercise in ward one. The second was to discuss activities planned and to seek support in meetings with the stakeholders at the local municipality and ward one level. The third was to request support in facilitating meetings with the ward councilors, the village wards committees, and the traditional leaders in ward one where the CBMS exercise would take place. The fourth was to review the proposed indicators and to access any additional documentation that would help in the exercise.
A series of meetings were also held with Greater Tzaneen Local Municipality team to get their commitment to the CBMS process. The second purpose was to introduce the team on the CBMS tool. The third purpose of the meeting was to request Tzaneen municipality official for permission to pilot the project. The fourth purpose of the meeting was to agree on the way forward knowing that the process is quite comprehensive will require additional funding from the municipality and require commitment from all key stakeholders from local municipality on the move. Presentation on CBMS was made to the Municipality senior officials, a proposed activity plan and core indicators were also presented for input. It was agreed that the proposed monitoring system would be beneficial to Greater Tzaneen Local Municipality.

2.2. Adjustment of CBMS Methodology to South Africa's Context

A series of meetings were also held with Greater Tzaneen Local Municipality team to get their commitment to the CBMS process. The second purpose was to introduce the team on the CBMS tool. The third purpose of the meeting was to request Tzaneen municipality official for permission to pilot the project. The fourth purpose of the meeting was to agree on the way forward knowing that the process is quite comprehensive will require additional funding from the municipality and require commitment from all key stakeholders from local municipality on the move. Presentation on CBMS was made to the Municipality senior officials, a proposed activity plan and core indicators were also presented for input. It was agreed that the proposed monitoring system would be beneficial to the Greater Tzaneen Local Municipality.

2.2.1. Core Poverty Indicators

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Indicators</th>
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<tbody>
<tr>
<td>Demography</td>
<td>Proportion of population by age group</td>
</tr>
<tr>
<td>Education institutional attendance</td>
<td>Proportion of educational institutional attendance by age group</td>
</tr>
<tr>
<td>Access to health care</td>
<td>Proportion attendance to health care facilities</td>
</tr>
<tr>
<td>Access to social grant</td>
<td>Proportion of access to social grant by type</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Proportion of unemployed head of households</td>
</tr>
<tr>
<td>Access to safe water</td>
<td>Proportion of households without safe water/distance</td>
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<tr>
<td>Access to sanitary sanitation</td>
<td>Proportion of households without access to sanitary sanitation</td>
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<tr>
<td>Access to waste disposal system</td>
<td>Proportion of households without access to sanitary sanitation</td>
</tr>
</tbody>
</table>

Table 1: CBMS Core Indicators, South Africa, 2012
### Table 1

<table>
<thead>
<tr>
<th>Access to electricity</th>
<th>Proportion of households without access to electricity</th>
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<tbody>
<tr>
<td>Access to fuel</td>
<td>Proportion of households using wood fuel</td>
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<tr>
<td>Access to RDP housing</td>
<td>Proportion of households with access to Reconstruction Development Programme (RDP) housing</td>
</tr>
<tr>
<td>Agricultural land</td>
<td>Proportion of households with agricultural land under traditional authority</td>
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<tr>
<td></td>
<td>Proportion of households with agricultural land &lt;1 hectare</td>
</tr>
<tr>
<td>Drought, flood, calamity</td>
<td>Villages affected by drought, flood, calamity</td>
</tr>
<tr>
<td>Robbery, theft, assaults</td>
<td>Number of reported cases of crime</td>
</tr>
<tr>
<td>Illiteracy</td>
<td>Proportion of illiterate heads of households</td>
</tr>
</tbody>
</table>

#### 2.3. Data Collection

##### 2.3.1. Data Collection Instruments

The data collection was carried out using the Household Profile Questionnaire (HPQ) developed by the CBMS South Africa team in consultation with the local municipalities. The questionnaire had two accompanying manuals namely field editing and household profile manual that were used as a guide for the enumerators on how to conduct the survey. Ward profile questionnaire was also developed. The Ward Councilor and Ward committee members were interviewed by using the Ward profile questionnaire.

A pretest was done in seven villages in Mutale Local Municipality Ward 1. The aim was to get experience of various types of household. Enumerators were trained on household data collection profile questionnaire and participatory tools. Each enumerator was given 15 questionnaires to assess their readiness in data collection process. The pre-test was conducted in the last week of February 2012. The sample was distributed proportionately based on the number of households in each village. The pre-test sites were Mabulo, Mphagane, Khakhu, Makuleni, Mukondeni, and Tshifume.

The enumerators were accompanied by the village representatives selected by the village and ward councilors. The CBMS team also accompanied the enumerators. Some enumerators were able to complete at least eight questionnaires, indicating that during the pilot test, enumerators should complete a maximum of at least 8-10 questionnaires per day. Most villages in Mutale Ward 1 are in mountainous areas and are impassible during rainy season. The villages are far apart and required in between transportation. The roads are not paved and need four-wheel drive vehicle during rainy seasons.

Several questionnaires contained some errors. This meant that during the actual data collection, care had to be taken to ensure accuracy. Some enumerators reported that the questionnaire was too long and others said that it was not possible to get the head of the household. Some household were not comfortable with issues relating to contraception and disclosure of income. Some households also
refused to answer questions that they felt uncomfortable with. Other errors were related to manual entry and tally. The team felt that it was a worthwhile exercise as they were able to put into practice what they had learnt and to test their understanding on the CBMS process. Other enumerators felt that another run prior to the pilot test was necessary to polish up what they had missed. It was resolved that mentorship during field supervision would be appropriate.

In Greater Tzaneen, each enumerator was given three questionnaires to test their application capability after the fourth day of training. The village representatives were not accompanied by CBMS students from University of Venda enumerators during the pre-test exercise. Weaknesses were noticed during the assessment of completed questionnaires and a decision was made to bring back University of Venda student enumerators for two days to mentor village representative enumerators. Sampled assessment of the questionnaires revealed improvement and therefore a decision was made to continue with data collection. It was also resolved that one staff member from Tzaneen office would work with the village representative on the ground. The staff member had attended all the training sessions on the CBMS process.

Like in the case of Mutale, some enumerators reported that the questionnaire was too long and others said that it was not possible to get the head of the household. Others said that some questions were considered sensitive and members were not comfortable to undertake the interviews.

### 2.3.2. Identification and Training of Local Enumerators and Supervisors

In Greater Tzaneen Ward 1, twenty-three trained enumerators from the villages and students from the University of Venda were tapped to administer the survey process, covering households in the eight villages across all localities. The enumerators’ selection criterion was done in two methods. The students were selected based on their area of discipline, background and interest on poverty related issues. The selection of the village enumerators was done by the community members overseen by the Ward councilor and the Ward committee members. The selection criterion was based on the level of education and community preference. A minimum of Metrics level of qualification was required. The total number of enumerators was determined by the number of villages, the budget, and the total households that was to be covered during the survey operation, landscape and distance between households. It was reasonable to have two enumerators per village especially in larger ones.

The process was overseen by the local CBMS research team from the University of Venda and two local economic development personnel from Greater Tzaneen office. Supervision was done by the local economic development officer assigned to the project and 8 Ward committee members who were conversant with the households in villages under their jurisdiction. The traditional leaders provided respective household listings that were used to establish the authenticity of the household heads.

Enumerators in Mutale underwent a three-day training, with a follow up mentorship from the supervisor in the field, while in Tzaneen the training took four days plus one day field orientation and a two-day field mentorship prior to actual data collection. The training in Tzaneen took longer
due to the distance from the University of Venda. It was resolved that data collection and editing training should be done as a block release. In both cases CBMS orientation and training manuals were used as a guide. The training covered a general background and rationale for CBMS. In the training, the enumerators were introduced to the concept of the CBMS. Their role as CBMS enumerators and how to conduct an interview, procedures and hands-on exercises on the CBMS data collection forms, and the data collection field operations were emphasized.

The training was both theoretical and technical including field exercises and group presentations. Sample questionnaires were given to the enumerators to help in pre-testing the quality and validity of the questionnaire and to test their understanding on how to conduct the enumeration exercise. Returned pre-tested questionnaires were reviewed and mistakes were corrected as part of the training. This was also helpful in determining the number of questionnaires that would be completed per day. The facilitators were also able to assess the questions that the communities were not comfortable to answer and come up with strategies on how to deal with them. The trainings also engage participants in classroom group exercises and field exercises on tallying the respondent's answers in the questionnaires. They were also trained to correct their own work by doing field editing procedures so that errors are minimized during enumeration. The other objective was to practice how to conduct interview and how to edit questionnaires.

Data editing manual was used to conduct the training in PowerPoint presentations in both local municipalities. Theoretical and practical training methodologies were used. Completed questionnaires from pre-test exercise were used to test the participants’ understanding on how to conduct editing exercise. Participants in a group of two were given questionnaires each from the pilot areas to access their competence before getting involved in the full exercise. The partnering method was used to help them discuss between themselves any areas that they did not understand. Mistakes were discussed and clarified during the exercise. Enumerators were asked to check accomplished questionnaires from the classroom and during the field pre-test exercise.

2.3.3. Study Area and Field Operations

Limpopo Province is situated in the far northern part of South Africa. It covers an area of 13.5 million hectares and has a total population of approximately six million people, about 70% of whom reside in rural area (Integrated Development Plans [IDP], 2007). Limpopo has five district municipalities namely, Vhembe, Mopani, Sekhukhune, Capricorn, and Waterburg. The pilot project was conducted in Mutale Local Municipality Ward One based in Vhembe District.

Although Limpopo province has a relatively large number of marketing outlets, abattoirs, canneries and preservers, the province’s single biggest problem is widespread unemployment and poverty. According to Human Science and Research Council (HSRC) (2007), much of Limpopo’s population is economically marginalized and deeply vulnerable, dominated by women-headed households, pensioners, and youth. This group is dependent on meager transfers, from urban relatives and/or state grants for nearly all their cash income. The province has the second lowest gross geographical
product in South Africa and the lowest per capita economic output. The economic performance, in terms of job creation, the quality of jobs, reduction of poverty, and inequality, has fallen far short of expectation and aspiration. Approximately 40% of the households in Limpopo province live in areas that are characterized by extreme poverty and underdevelopment. Identification of poverty pockets in the province using appropriate design and methodology therefore paramount for an effective strategic intervention by local government.

**Mutale Local Municipality Ward 1**

Mutale Local Municipality is the first CBMS pilot site. It is characterized by underdevelopment, poverty, and lack of skills. As a result of the Bantu Education system introduced during the apartheid, 60% of the Mutale local municipality is officially defined by the government of South Africa as poor (IDP, 2007).

Majority of families in the district are dependent on transfers from urban relatives and/or state grants for nearly all their cash income. Nearly 70% of the potential labour force is either unemployed, in subsistence agriculture, or in the informal sector Integrated Development Plans (IDP, 2007). Mutale Local Municipality is made up of 13 Wards with approximately 24,139 households. The first pilot site on CBMS was undertaken in Mutale Ward 1.

**Greater Tzaneen Local Municipality Ward 1**

The Greater Tzaneen Municipality comprises a land area of approximately 3240 km. The municipal boundaries form an inverted T-Shape, which results in certain developmental implications for the Municipality, and more specifically the distance to markets, difficulties in respect of service provision. Greater Tzaneen has a population of approximately 375,000 people. The Greater Tzaneen Municipality is made up of 34 Wards and 125 rural villages and almost 80% of households reside in these rural villages (IDP, 2012). The second CBMS pilot site was undertaken in Greater Tzaneen Ward 1.
The survey operation started in Mutale in mid-March 2012 after the trainings. The survey operations took two months because of the area in which the enumerators had to cover. Some enumerators tried to bypass some households. The total number of households provided by the local municipalities, and that from the ward councilors and the traditional leaders were quite different. This caused a challenge during data collection exercise.

The research team was composed of several players. The mayor, ward councilor, the village ward committee members, the traditional leaders, the student enumerator, and the village representative enumerators. The mayor was a crucial person in informing the ward leadership on the exercise and soliciting their support during the interviews. The ward councilor was crucial in informing the communities on the exercise and to solicit their cooperation. The village committee members and traditional leaders were crucial in provision of household listings for data collection exercise. Once the household listing exercise was completed, the enumerators embarked on the actual data collection exercise. The Mutale pilot site had one supervisor and a support team who issued the questionnaires, edited them, and made field visits to ensure quality control.

Enumerators were required to return completed questionnaires on a weekly basis, which were checked by the supervisors, and if found incomplete, the responsible enumerator was called upon to make call backs and complete the questionnaire(s). The enumerators were required to complete 50 questionnaires per week.

The operation started in Tzaneen in December 2012, after the trainings. The survey took two months because of the December holidays. Like in the case of Mutale, the total number of households...
provided by the local municipality, the village listings and CBMS varied. This caused some reconciliation challenge during data collection exercise.

The research team was composed of the local economic development team from Tzaneen office, the Ward councilor, the Ward committee members, the traditional leaders, the university of Venda student enumerator, and the village representative enumerators. The local economic development team provided orientation to the Ward leadership structures on the exercise and solicited for their cooperation during the interviews. The Ward councilor and the Greater Tzaneen officials did an orientation with communities on the exercise to solicit their cooperation and organized a Community based Monitoring (CBMS) launch that was officiated by the mayor prior to the commencement of the exercise. The village committee members and traditional leaders provided updated household listings for data collection exercise.

As in the case of Mutale, enumerators were required to return completed questionnaires on a weekly basis, which were checked by the local economic development official for incompleteness and forwarded the same to CBMS South Africa field supervisor to further check. The enumerators were required to complete 50 questionnaires per week. Questionnaires that did not meet the quality requirements were retuned back to the enumerators to make call backs and complete the questionnaire(s).

After data collection, the responses from questionnaire were inspected to establish whether proper and complete data was acquired. Data editing was undertaken to ensure quality, integrity and compliance prior to processing. Any information that was missing or had errors was marked for further investigation. Any mistakes identified were corrected by the enumerators an accompanied data editing manual was used to ensure integrity.

### 2.4. Data Processing

One of the most critical steps in the implementation of CBMS is data processing. This is because results from this procedure formed the basis for further planning and decision-making. In the pilot implementation in 2010, data processing for both CBMS sites was done using tally sheets and Excel software. Excel data content, frequency distribution and measures of central tendency were analyzed using both qualitative and quantitative methods.

The data was then coded and entered on to the excel data file. Various pre-established codes on the questionnaires were used. Data regarding numbers was analyzed using measures of central tendency. Graphs and tabulations were used interchangeably to answer the objectives of the study when necessary. Comparison with the Local municipality integrated development plans and statistics South Africa 2011 findings were used as much as possible where appropriate to assess potential for possible future integration and supplementation.

Data processing was done with the support of a pool of CBMS enumerators. This was because they were more familiar with the concepts, definitions and the accomplished household profile.
questionnaires. This made the processing easier and more accurate. The participants were trained in processing the results from the survey questionnaire on how to compute proportions and rates of the CBMS core and other additional indicators. They were also trained to understand and interpret these indicators. Data boards were used to record the results of computations of CBMS core and other additional indicators. Formulas and definitions of the indicators were included for easier reference. To ensure comparability, concepts were made in line with, and consistent with the statistics produced by the South Africa national government agencies.

The researchers employed a convergent design, also known as parallel integration approach. This is because equal priority was given to both quantitative and qualitative strands. The designs were conducted concurrently, and the data was merged at the point of data analysis and interpretation (Angell and Townsend, 2011). This research design was appropriate for this study because both qualitative and quantitative strands provided a better understanding of multidimensional poverty profiles. Community based monitoring methodology does not use sampling procedure, therefore the study aimed to interview the entire households within the study sites. There were households who could not be reached due to various reasons. However, number did not have a significant impact on the findings of the study.

The data was then coded, tallied and entered on to the excel data file. Specific data analysis methods such as frequency distribution analysis were employed to achieve specific objectives of the study. Data regarding number and types was analyzed using measures of central tendency. Content analysis was employed to determine specific themes emerging from the responses such as educational institutional attendance levels, quality of water health and climate change among others. This involved a detailed analysis of responses given by household heads. Data processing and coding was done using both manual and computerized software and editing manual.

- Manual tally sheets, data boards and computerized (excel)
- Data dictionary was developed
- Raw and processed Datasets for core indicators
- Excel software to calculated proportions
- NRDP software to create Village poverty mapping.

Attributes were added one by one using NRDB software that was processed for South Africa by variable names listed in the excel file. To view the maps, village CBMS indicators was added one by one. This step was done for Mutale and Tzaneen local municipalities separately. Various color ranges were used to indicate the villages. To determine the ranges of proportions, the excel file Data sets for Mutale and Tzaneen including the formula and the resulting ranges for the indicators. Four standard ranges were used for this purpose (green, light green, pink and red. The colors made it easier to see which areas are priority ones for example red and pink areas.
Figure 2: Proportion of households without access to sanitary toilets, by village Ward 1, Mutale, Limpopo, 2013

Source of basic data: CBMS Census, Ward 1, Mutale, Limpopo, South Africa, 2013

Figure 3: Households without adequate sanitary toilet facilities by village, Ward 1, G. Tzaneen, Limpopo, 2013

Source of basic data: CBMS Census, Ward 1, Mutale, Limpopo, South Africa, 2013
2.5. Data Validation

The design allowed validation of results from the separate components of the research which gave an allowance to confirm or corroborate findings within the study (Cresswell et al., 2003).

2.6. Database Management

The data collected on tablets has been transferred to a computer. These operations have been overseen by a group.

3. Uses of Data

Local Planning and Monitoring Delivery of Services

The general objective of the Community-Based Monitoring System (CBMS) project in the Vhembe and Mopani District Municipalities was to complement the existing national and provincial poverty targeting and monitoring initiatives. The project aimed to provide the national and local governments with continuous and timely up-to-date information for policymaking, policy reviews, planning, budgeting, and service delivery and programs implementation (Oloo, 2012).

Regular collection of CBMS indicators would provide up to date baseline data which can then be used in subsequent information assessment of progress of the conditions and services offered to communities. CBMS would also provide empirical data for development practitioners when they assess the impacts of their programs and interventions. CBMS would help local municipalities to allocate resources, diagnose poverty in their locality, identify who should receive assistance and provide social economic information about communities by wards, villages and households. This is because the CBMS is able to provide data about the location and extent of communities’ unmet needs at household levels. Local economic development officials, district and local municipalities; policy makers, academics, donors and NGOS will be able to use the information for prioritization of projects, effective planning and monitoring of development progress.

It is envisaged that data gathered from CBMS will be used to further build the capacities of local government units as well as members of communities in addressing the needs of their respective localities by maximizing the use of their existing resources and providing the necessary information that would reveal to decision makers an up-to-date development situation of communities.

Poverty Profiling and Informed Budgeting and Decision Making

CBMS has been used to capture multiple indicators of poverty and monitor the extent of multidimensional poverty at the local level in a study conducted by Oloo (2014). Data on education,
unemployment, access to safe water and sanitation, among others, was collected from around 1,159 households in Mutale Ward 1 and from 2,140 households in Greater Tzaneen Ward 1. The said research mentions CBMS as a tool which can be used to formulate better strategies and improve decision making and targeting of beneficiaries, to include vulnerable groups such as women and the youth. The study also mentions the role of CBMS in aligning the budget with the identified socio-economic needs in the localities.

**MDG (now Sustainable Development Goals 2030) Monitoring**

It is further recommended that CBMS be used as a vital tool in monitoring the Millennium Development Goals (MDGs) revised in 2015 to sustainable development goals 2030 at local levels (Oloo, 2012; Oloo, 2014).
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1. Context and Rationale for the Implementation of CBMS

1.1. Background

The Government of Tanzania has sought to encourage participatory bottom-up planning with a focus on the objectives of poverty alleviation since independence in 1961. Attempts were made in different periods through various national strategies such as: abolishment of chiefdom in 1960s, introduction of the Regional Decentralization Act of 1972, re-establishment of LGAs in 1982, Local Government Reform Programme of 1998 and the review of PRSP I in 2003/2004.

In 2004, the Government developed the Opportunities and Obstacles to Development (O&OD) methodology which defines a process to be followed by the municipalities to achieve participatory planning and monitoring in the context of decentralization. The O&OD methodology is a holistic process which recognizes the role of the local communities in the identification, preparation, and implementation of development projects. However, since it focuses on community groups, the methodology cannot address the socioeconomics of individual people and households; hence, less applicable for poverty monitoring purposes.

It is under this context that the Dodoma Municipal Council in Tanzania on 2005 proposed for the implementation of a Community-Based Poverty Monitoring System (CBMS). The CBMS concurs with the O&OD methodology but goes further to the household level to monitor the poverty status of the individuals in selected pilot areas and later envisioned to be replicated in a wider area. The Council recognizes the fact that good planning and decision making requires a comprehensive municipal information system which captures pertinent data and produces meaningful reports. This can be seen in the Council's 2003-2007 Strategic Plan where the development of an “evident statistical database” for planning and monitoring purposes was identified as a priority item.

The CBMS, with its aim to provide a good information-base for policymaking and project-impact monitoring, is seen as highly complementary to both the O&OD methodology. It is under this context that the pilot implementation of CBMS in Tanzania was initiated by the Dodoma Municipal Council in 2005. The adoption of the CBMS methodology was replicated in Muleba District by the Institute of Rural Development Planning (IRDP) in 2013 particularly to generate data for analyzing youth unemployment and vulnerability.

A community-based monitoring system entails the participation of people in the community to collect, process, and use data. The system will provide information on the socio-economic welfare conditions of all members of the community. As the CBMS suggests, participatory development planning–information generated by the system is aimed to be utilized in the regular functions of the local government authorities. This approach will facilitate establishing a nationwide statistical system starting at the grassroots level.
1.2. Local Government Structure

The independent Tanzania inherited the colonial structure of Local Government, which lasted until 1972 when Local Governments were abolished and replaced by a system known as decentralization. Essentially, this entailed extending the Central Government structure down to the Village level with no elected local representatives (i.e. “Decentralization by Deconcentration”).

In 1982, legislations were enacted, re-establishing Local Governments in the form of devolution as opposed to deconcentration. Village Councils, Township authorities and district councils were established as the local government authorities in rural areas; and in town, municipal, and city councils as local government authorities in urban areas. These became fully operational in 1984 to ensure the existence of the latter's capacity and efficiency in delivery services to the people.

The Structure of the Local Government System in Tanzania

Village is the basic unit of the local government. The head of the village government is an elected Village Chairperson, who is assisted by the appointed Village Executive Officer (VEO). Each village government has three standing committees: the defense and security committee, the social services and self-reliance committee and the finance, economic and planning committee. Villages are divided into Sub-villages called Vitongoji whose chairpersons mediate between the rest of the village community and the village government.

Worth noting is the fact that, the structural set-up for the LG authorities (municipal level) exists starting at the grassroots - kitongoji in the case of rural councils or mtaa level in the case of urban councils - upwards to the ward and council level as shown in Figure 1.

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1Drawn from the CBMS Project Proposal by Dodoma Municipal Council (2005)
On the one hand, citizens participate in decision-making process through local assembly meetings and are represented at the various higher local government levels. On the other hand, the management set-up is meant to reflect the various operational departments within the councils.

The next upper tier is called Ward administered by Ward Executive Officer (WEO). In each ward there is a Ward Development Committee operating under the council. The Committee is comprised of (1) an elected member (councillor) of the district council representing the ward (formally the chairman of WDC, but not necessarily); (2) Public officers seconded to the ward (such as education and health coordinators); (3) Chairperson and secretaries of all (sub-) village councils (VEOs); (4) Ward Executive Officer (secretary).

The Ward Development Committee is responsible for the implementation of decisions and policies of the council, promoting the establishment and development of community groups, and the formulation and submission to their respective council's proposals for the development activities and making of by-laws.

Council is the next level whereby the overseer is the Director who is advised by several heads of department and sections. The plans from this tier are submitted to the Regional Secretariat and finally to the Ministry of Local Governments and regional administration.
Participatory Planning and Poverty Alleviation Motive in Tanzania

The Government of Tanzania has sought to encourage participatory bottom-up planning and poverty alleviation strategies since the year of independence 1961. During the early 1960's, the chiefdoms were abolished countrywide as one of the ways of giving decision-making to the citizens. This was an imperative element in the Independence Vision, whose goal was to achieve a higher standard of living for the population by fighting illiteracy, diseases and poverty. People were encouraged to work hard and involve themselves in self-help projects. The catchphrase “UHURU NA KAZI” describes this era, which means “Independence and work.” The late president Mwalimu Julius Kambarage Nyerere, summarized this concept by saying “It can be done, play your part.”

From the late 1960's to the early 1990's the focus was on socialism and self-reliance. The Arusha Declaration articulated the strategy through which influence, the Local Government Authorities of the colonial administration were abolished in 1972. This paved the way for the introduction of the Regional Decentralization Act of 1972 to enable more participation in decision-making through the establishment of Village government, District development Committees and Regional Development committees.

Until 1970's, the national efforts to tackle the problems of poverty used to be channeled through centrally directed, medium-term and long-term development plans, and resulted in significant improvement in per capita income and access to social services. Thereafter, these gains could not be sustained because of various domestic and external shocks in the country. In average, it took the government a decade or so to re-establish macro-economic stability and some structural reforms towards combating those shocks.

In order to facilitate the transfer of more authority back to the people, the Local Government Authorities were re-established by the Act No. 7 -10 of 1982, by which the Local Government Authorities were given the right and power to participate and involve the people in planning and development programs.

Since 1992 the Government of Tanzania (mainland) has undertaken to change the role of the Central Government from service delivery to that of policy formulation, coordination and advisory; thereby allowing the Local Government Authorities to assume the role of service delivery and facilitating community development activities.

After the re-establishing macro-economic stability and structural reforms that aimed at creating an enabling environment for improved standard of living, Tanzania has resumed its focus on poverty reduction. The Government has declared various initiatives towards poverty reduction and attainment of social and economic development. Those efforts are based on a broad policy framework namely ‘Development Vision 2025’ (of 1999), which established the targets to be achieved with respect to economic growth and poverty eradication.

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As an effort to operationalize Vision 2025, the Government formulated the National Poverty Eradication Strategy (NPES) in the year 2000, which provided an overall guidance a framework for co-ordination and supervision of the implementation of policies and strategies of poverty eradication. The Poverty Reduction Strategy Paper (PRSP) 2001 was thereafter formulated as a Medium-Term Strategy of poverty reduction, in the context of the enhanced Highly Indebted Poor Countries (HIPC) initiative.

The Poverty Reduction Strategy Paper guides the country’s efforts to reduce poverty. It is the blue print through which the Government of Tanzania achieved or qualified for the Highly Indebted Poor Countries (HIPC) Initiative, leading to cancellation of debts and applying the savings (revenue that would otherwise go for debt servicing) to the provision of social and economic services to the needy. It was a three-year programme, which has been completed as a phase one of the initiative.

In 2004, the PRSP I was reviewed so as to make it more comprehensive and pro-poor. The review, therefore focused on broader and deeper interventions to reduce poverty and raise people’s awareness on the PRS and MDGs. Apparently, there were insufficient translation of macro level achievements to the micro level due to unclear monitoring systems. In the previous systems, the survey of poverty indicators did not contain timely and adequate information on lower administrative units such as the wards, villages, vitongoji, and mitaa around which the micro-level results are evidenced. This has called for a closer analytical work on growth-poverty linkages and how growth could better benefit the poor through the resultant PRSP II – with a new title; the National Strategy for Growth and Reduction of Poverty (NSGRP). Swahili being the National language in Tanzania, the Strategy is known in Swahili as “Mkakati wa Kukuza Uchumi na Kuondoa Umaskini Tanzania-MKUKUTA.

NSGRP is overseen at the policy level by the Vice President’s Office, which holds the portfolio for Poverty Reduction, but at the operational/implementation level, it is the responsibility of the LGAs overseen by the PORALG. It aims at achieving three major clusters of broad outcomes of poverty reduction namely: growth and reduction of income poverty; improved quality of life and social wellbeing; good governance and accountability.

In order to ensure these targets are met, resources for development should be used in the most effective and efficient way possible. This calls for accurate and timely data and information. Reliable information on poverty trends will help policy makers to adjust the strategies and to make them ever more effective and efficient.

1.3. Review of Existing Monitoring Systems

*Monitoring of Poverty Reduction Strategy in Tanzania*

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To ensure the availability of timely and reliable evidence on poverty at national as well as local government levels, a comprehensive Poverty Monitoring System (PMS) has been designed since year 2000. Through this system, data and information related to poverty is already being collected, analyzed and disseminated in Tanzania. However, there has been a lack of coordination in these activities. As a result, data collection has mostly been ad hoc, leading to duplication in some cases and neglect in others. There has been poor communication between data producers and users, and some long delays in the analysis of existing data. Policy and decision makers in government also insufficiently use data and information. Basing policy and decision-making more firmly on available evidence is a major challenge presently and for the years to come.

At the time CBMS was proposed to be pilot tested in Dodoma in Tanzania in 2005, existing statistical information is collected in the vitongoji and mitaa on a form referred to as the *Fomu ya Takwimu*. The collection procedure of the information contained on the Fomu ya Takwimu is as follows:

1) Collection and First Aggregation of Data: In the urban communities, the Mtaa Leader gathers the information, records it on the Fomu ya Takwimu, and submits the form to the Kata (ward) office.

In the rural communities, on the other hand, the Kitongoji Leader gathers the information, records it on the Fomu ya Takwimu, and submits the form to the Kijiji (village) office. The Village Executive Officer then consolidates the information from all of the Vitongoji, and submits the consolidated form to the ward.

2) Second Aggregation: The Ward Executive Officer then consolidates the information from all of the Mitaa or Vijiji and submits the consolidated information to the municipal office.

3) Third Aggregation: Finally, the municipal office consolidates all of the forms to produce municipal totals and analysis.

*Ineffectiveness of the Existing System*

There has been poor communication between data producers and users, and some long delays in the analysis of existing data especially in the tiers from vitongoji/mtaa, wards and up to the district position where “fomu ya takwimu” was used. The form was too complex for a villager to understand, lacks individual household data and was not filled in frequently enough to produce reliable information. This means, the essential datasets are insufficiently captured or shared by policy and decision makers in the other levels of the local government.

The existing monitoring system does not provide a current picture of the poverty status of vulnerable groups, making it difficult to take appropriate measures to combat poverty. In that light, the proposed CBMS implementation intended to fill the need for more frequent data collection and for carefully designed but relatively simple set of indicators.
There has been a poor communication between data producers coupled with delays in the analysis of existing data especially in the tiers from vitongoji/mtaa, wards and up to the district position where “Fomu ya takwimu” was used. The form was too complex for a villager to understand, lacks individual household data and is not filled in frequently enough to produce reliable information. This means, the essential datasets were insufficiently captured or shared by policy and decision makers in other levels of the local government. The lack of consistent and timely data on poverty at the district and downward to the mtaa and village committee levels, as shown in Figure 2, is the gap that CBMS can fill.

The lack of data made it difficult for the district assemblies to identify the needs of the local people and address them sufficiently. Therefore, with the application of community based monitoring system, it was expected to offer the district assemblies fair opportunities to assess policies they had been implemented at the local levels, identify problems and basic needs at the village/community levels and how best they can be addressed.

There was no consistent and timely data on poverty at the district and downward to the mtaa and vitongoji committee levels. Lack of data makes it difficult for the district assemblies to identify the needs of the local people and address them sufficiently. A community based monitoring system intended to offer the district assemblies fair opportunities to assess policies they have implemented at the local levels, identify problems and basic needs at the village/community levels and how best they can be addressed.
2. CBMS Design

2.1. Key Features of CBMS in Tanzania

Very little data on community poverty exists below the district levels in Tanzania making it difficult for realistic implementation of the targeted interventions for alleviating poverty in the communities at grass root level.

The pilot implementation of CBMS in the context of Tanzania in 2005 generally aims to develop a comprehensive municipal information system that captures municipal, ward and village level data, and produces reports and analyses that facilitates good planning and decision-making for poverty alleviation while promoting participatory planning and budgeting through the use of CBMS. Taking the case of Dodoma Municipality, the initial CBMS work specifically aimed to:

- Improve capacity of data collectors at the municipal, ward and village units for better processing and analysis;
- Offer grass root level communities with simple and easy tools to collect data on poverty indicators, to tell the impact of strategies and determine the trend of poverty;
- Provide policy makers with data to be used for prioritization of projects, effective planning and monitoring of developmental programmes in various communities;
- Facilitate the preparation of Poverty profiles and development plans;
- Strengthen the flow of information and dissemination of poverty data and information among the stakeholders in all levels; and
- Test a locally feasible data capturing, processing and dissemination system, without necessarily relying on central government resources.

Since it involved the participation of the communities in data collection and their primary use, CBMS was envisioned to be a low-cost and easy-to-sustain system. It uses the enumerators from the community so as to get the evident information, that is, without the influence of the experts or technicians from the higher levels. The process was continuous so as to avoid time related mismatch hence fast updating.

The implementation of CBMS in Tanzania involved the following steps:

- a) awareness creation on the community-based monitoring study for the stakeholders
- b) designing and Identification of unemployment and vulnerability Indicators
- c) designing of the data collection instruments
- d) pre-testing of survey Instruments and the related results
e) improvement of the survey instruments and the design of CBMS
f) training of enumerators
g) data collection/field survey
h) data compilation and processing
i) data analysis
j) dissemination

In the replication the of CBMS initiative in Bukoba Municipality in 2013, led by the Institute of Rural Development Planning (IRDP), the local CBMS research team of IRDP collaborated with relevant officials at PMO-RALG and the National Bureau of Statistics (NBS) at the national level in order to make sure that the CBMS implementation sets the required support. At the district level the project maintained close contact with the District Executive Director (DED) and the district planning officers as they are the custodian of all development activities in the district. The district planning office coordinates all projects which are implemented in the district thus the CBMS initiative is coordinated under the District/Municipal Planning Office. At the ward level the Ward Development Committee which is composed by the Ward Executive officer and “Mtaa” and village chairpersons. Although this is one of the ward development activities, the committee involves the chairperson from the village and “Mtaa” where CBMS project is being implemented. Four ward executive officers, and four councilors from four wards were involved in the CBMS process. At the Mtaa and village level, four Mtaa executive officers and four village executive officers, and four “Mitaa” and two village chairpersons were involved in guiding enumerator during the CBMS implementation.

The CBMS in Tanzania is deemed to be used to be able to keep track the impact of government policies and programmes on vulnerable groups particularly (1) Uneducated, (2) Landless agricultural workers; (3) Fishermen (4) Transport whistle blowers (wapigadebe) (5) those employed as small business operators, (6) daily tax collectors (7) those involved in illegal activities and; (8) rural and urban poor (Bashemera & Benedict, 2017).

2.2. Adjustment of CBMS Methodology to Tanzania’s Context

2.2.1. Core Poverty Indicators

The CBMS pilot study initiated in 2006 identified and generated a core set of poverty indicators at the local level through the implementation of CBMS in Dodoma Municipality. The CBMS core indicators were developed based on: (1) consultation of the stakeholders at the municipal level as well as other lower tiers where the end users are found. (2) the parameters of the main sectors which were bench-marked in the Local Government Reform Programme, that is, education, water, agriculture and livestock, roads and health. (3) the standard national poverty monitoring system in which the indicators are categorized according to the logical framework of the PRSP of Tanzania. (4)
the CBMS literature developed in other countries like Philippines and Ghana.

The CBMS is designed to generate a core set of indicators to facilitate poverty monitoring. The identified core poverty indicators generated through the implementation of CBMS cover information on education, economic status, health and nutrition, shelter, water and sanitation and community participation. Details are as follows:

**Table 1: CBMS Core Indicators, Dodoma Municipality, Tanzania, 2009**

<table>
<thead>
<tr>
<th>Dimension of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td>Proportion of children 3-5 years old not enrolled into pre-primary school</td>
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<tr>
<td></td>
<td>Proportion of children 6-13 years old not enrolled in primary school, by sex</td>
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<tr>
<td></td>
<td>Proportion of children 14-19 years old enrolled in primary school, by sex</td>
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<tr>
<td></td>
<td>Proportion of boys and girls 19 years and above not enrolled into tertiary education</td>
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<tr>
<td></td>
<td>Proportion of population walking more than 30 minutes to school</td>
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<tr>
<td></td>
<td>Proportion of population who know to read and write</td>
</tr>
<tr>
<td><strong>Participation</strong></td>
<td>Proportion of household members who participated in constitution amendment discussion</td>
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<tr>
<td></td>
<td>Proportion of household members who participate in local government meetings</td>
</tr>
<tr>
<td></td>
<td>Proportion of population who are members of CBOs</td>
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<tr>
<td></td>
<td>Proportion of household members who participate in leadership</td>
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<tr>
<td></td>
<td>Proportion of household members 18 years old and above who are registered voters</td>
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<tr>
<td></td>
<td>Proportion of household members who participated in the constitution discussion</td>
</tr>
<tr>
<td><strong>Economic Status</strong></td>
<td>Proportion of population aged 15 years and above who are neither employed in formal sector nor in informal sector</td>
</tr>
<tr>
<td></td>
<td>Proportion of population without diverse sources of income</td>
</tr>
<tr>
<td></td>
<td>Proportion of households involved in agriculture who do not own land used for agriculture</td>
</tr>
<tr>
<td></td>
<td>Proportion of households involved in fishing who do not own fishing vessels</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who do not own non-agricultural assets</td>
</tr>
<tr>
<td><strong>Health and Nutrition</strong></td>
<td>Proportion of women aged 15-49 years who died due to pregnancy related cause</td>
</tr>
<tr>
<td></td>
<td>Proportion of deaths among children under 5 years old</td>
</tr>
<tr>
<td>Shelter</td>
<td>Proportion of households/population not getting 3 meals per day</td>
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<tr>
<td>---------</td>
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<tr>
<td></td>
<td>Proportion of households not owning housing units</td>
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<table>
<thead>
<tr>
<th>Water and Sanitation</th>
<th>Proportion of households/population without access to safe water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion of households/population no getting water within 400 meters</td>
</tr>
<tr>
<td></td>
<td>Proportion of households/population without access to sanitary toilet facility</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Participation</th>
<th>Proportion of population aged 18 years and above who did not participate in 2015 election</th>
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<tbody>
<tr>
<td></td>
<td>Proportion of population aged 18 years and above who did not participate in constitution amendment discussion</td>
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<tr>
<td></td>
<td>Proportion of population aged 18 years old and above who are not registered voters</td>
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</tbody>
</table>

The information generated through the CBMS can be disaggregated by gender and across sublocations, among others.

2.3. Data Collection

2.3.1. Data Collection Instruments

*Pilot Test in Dodoma Municipality*

Data collection was done by means of two instruments: questionnaire (household and village/ward questionnaires) and maps. The questionnaires were designed on the basis of the proposed poverty indicators to be monitored. For location of physical infrastructure and other objects of spatial importance, the spot maps and a GPS (Geographic Positioning System) gadget was used.

Household survey was done through two instruments namely: household profile questionnaire and rider questionnaire simultaneously. 155 enumerators conducted the survey in Dodoma (17 wards) for 22 days. The approach applied was to work with three supervisors in the three sites at a time. It was so done so that the time schedule could fairly be accomplished.

The local research team leader and three consultants also supervised the activities in the survey area. A total of 39,256 households were interviewed in all project sites (33,957 households in Dodoma).

Ward/village profile questionnaires were completed by WEO/VEO (Ward/Village Executive Officers). They were administered under the supervision of the local research team who carried out the spot checks to ensure quality and smooth implementation of the CBMS survey.

*Bukoba Municipality and Muleba District*
Data was collected through a household census using tablets with the aid of the CBMS Accelerated Poverty Profiling (APP). Three sets of questionnaires were administered in tablet form:

a) Community questionnaire – administered to village heads/representatives

b) Household Profile Questionnaire – collected basic data for all members of the households in the project site/s

c) Rider questionnaire – a sub-module administered to youth members of the household to collect additional information regarding employment and entrepreneurship among the youth

Data collection involved a household census, conducted by trained local enumerators, using a structured set of questionnaires, to collect data from the selected study villages and mitaa. Questionnaires were translated into local language (Swahili). All households in the selected Mitaa and villages were covered in the interview; a total of 5,191 people from 1,305 households.

Members of the local research team from IRDP in collaboration with two District Technician Officers supervised the data collection exercise. About 8 trained enumerators selected on merits administered the questionnaire by using the CBMS APP tools. Information on variables stipulated in the questionnaire was collected from the head of the household for household questionnaire and from the selected youths for rider questionnaire.

Additional information was collected from key informants, the community leaders including village secretaries, hamlet leaders through interviews and focus group discussion.

2.3.2. Identification and Training of Local Enumerators and Supervisors

Case of Dodoma Municipality

The enumerators for the pilot CBMS implementation in Dodoma Municipality were selected from ward/village workers, retirees and local leaders. Criteria considered for selection include residency in the census area, literacy, and ability to do basic calculations.

Training of the trainers, who would in turn train the enumerators, was conducted by the local CBMS research team for 3 days. The training team included the CBM team members, planning officer, community development officer and two participants from each study area. The training module, conducted for 3 days, focused on the CBMS process, the use of data collection tools and the approaches of survey.

The training of the 24 local enumerators in Kiwanja cha Ndege ward and Nala village was done using the CBMS modules translated in Kiswahili (local language) for better understanding. The questionnaires and household listing forms were distributed to all enumerators a day before the training and they were asked to familiarize with them in advance. During the training, the enumerators were enlightened about the objectives of the CBMS; they discussed the questions in the
questionnaires and performed a role play about how to conduct the interview and field editing to make sure that they understood the steps of the exercise.

**Bukoba Municipality and Muleba District**

Capacity building activities included training of trainers, training of enumerators and training of data encoders and processors. Training of the trainers and enumerators was implemented by using 2 training modules namely Module I and Module II.

Training Module (I) was meant for CBMS trainers and enumerators, covering CBMS process lectures and hands-on exercises on how to conduct the survey, handling of field operations and how to administer the survey forms.

**Training of Trainers**

A three-day training of trainers from the project sites was conducted at the council level. The participants (trainers) were from the council offices involving planning officers, Community development officers, IT specialists, statisticians and previous trainers in the pilot project from their respective localities. For this training of trainers, Dodoma Municipal council had 6 trainers (to attend batches from 17 wards) while Lushoto and Morogoro had two trainers from each ward, making a total of 10 trainers.

**Training of Enumerators**

The trained trainers thereafter conducted the Training of CBMS Enumerators at the ward level for 3 days. The participants were enumerators who were selected by the criteria that:

a) they reside in the project sites;

b) they are preferably extension workers, teachers and college students, other volunteers such as retired officers or influential persons in the project wards; and

c) they are able to read, write and do simple computations.

Since the enumeration exercise was planned to take place within a month (maximum of 22 working days and an average of 10 questionnaires per day), the number of enumerators for each ward was estimated based on the number of households and the planned survey time. Therefore, 155 enumerators were selected for the 17 wards in Dodoma, 15 enumerators for one ward in Morogoro and 16 enumerators for one ward in Lushoto.
The questionnaires (core and rider) and other working tools such as survey forms and the related manuals (for data collection and field editing) were distributed to all the enumerators a day before the training and they were asked to familiarize with them in advance. During the training, the trainers discussed the questions one by one and made sure that every enumerator understood the exercise of filling in the questionnaires.

**Bukoba Municipality**

The IRDP CBMS Project team members in collaboration with two District Statisticians/Officers administered the conduct of field data collection. The enumerators were purposively selected based on their qualifications and experience in conducting census. The CBMS census covered and generated data for a total of 5191 population in the study sites.

During census the Project Team worked closely with the Regional, the district, wards and village leaders. The village and mitaa leaders assigned youths to escort enumerators to the household during the data collection.

To ensure the quality of the data, pre-testing of questionnaire was done before the census. Secrecy of information obtained was also maintained during research and after research work.

**2.3.3. Study Area and Field Operations**

CBMS was initially implemented by Dodoma Municipal Council in 2006-2007 in one ward (urban area) of Kiwanja cha Ndege, which has approximately 2,396 households, and one Village (rural setting) of Nala, which has approximately 2,444 households. It is worth noting that the villages and wards have autonomy in terms of planning and implementation; meaning that the CBMS was seen as a system that can be adopted in their specific administration units.

The CBMS was implemented again in 2013 by IRDP in Bukoba municipality which is predominantly urban and Muleba district which is predominantly rural. The 2002 National Population and Housing Census (National Bureau of Statistics, 2004) indicated that Bukoba Municipality (Urban district) is employment-wise dominated by business operations which account for 39% of the total labour force. Other sectors of employment in the municipality and their labour force employment contribution in brackets include office work (12%), agriculture (27%), elementary occupations (14%) and plant operations/assemblies (5%). On the other hand, the census showed that in Muleba district, employment in business operations account for 6% of the total labour force, office work (2%) agriculture (86%), fishing (1%), elementary occupations (4%) and plant operations/assemblies (5%). The dominance of business operations in Bukoba municipality can be attributed to the fact that it contains Bukoba town which is Kagera Region's headquarters and the largest business centre in the region.
According to the 2011 Bukoba Municipal Council and Muleba District Council profiles, the estimated number of entrepreneurial activities in Bukoba municipality and Muleba district are 2,231 and 2,328 respectively. The main cash crops include coffee, sugarcane, and tea while the main food crops include bananas, beans, cassava, sorghum and maize. Moreover, youth were involved in fishing activities. With regard to business operations, the youth are involved in a range of businesses including banana, fruits and vegetable selling, motorcycle business (passenger transport), running small shops, kiosks, and those in urban wards were dealing with mobile phone-related business such as mobile phones money transfer activities and stationery sales.

2.4. Data Processing

**Dodoma Municipality**

Data processing instruments have been developed to involve manual and computerized approach. Manual approach was divided into three parts: (i) filling up of spreadsheet frames by the enumerators, (ii) tabulation of data to produce study area statistics base, and (iii) aggregation of all the survey area data which were finally analyses.

Data frames were designed in a way that all updates in the questionnaires were incorporated. The manual approach was applicable for the wards where there are no computers and there exists no computerized databases. For the previous pilot sites where most of the data were computerized, the data captured in the survey were keyed and processed in the three available computers. A data entry frame in MS Excel was developed for computerized processing and verification of the accuracy of manually processed data from other project sites.

**Bukoba Municipality and Muleba District**

Training of data processors was conducted in two versions: manual data processing training at the village and ward level, and computerized data processing at the municipal level (where computers were available). Six processors from the three councils were trained for 3 days. The training was done by a consultant and CBMS team member.

Training module (II) was about encoding the accomplished Household Profile and Rider questionnaires. It covered imparting knowledge on the basics in file management and encoding system and database operations. The questionnaires used in Module (I) were also used for Module (II) as they had been filled in already.

Ten participants from Dodoma were trained for 3 days by the same trainers selected earlier. This was done a few days before the encoding exercise so that the participants would not forget. The criteria used to select the participants were: ensuring that they were computer literate; had attended the training on data collection and had a contract with their local government units for the duration
of the project. With these criteria, most of the nominated participants had attended module (I) as trainers or enumerators.

Data collected using Ward/Village Profile questionnaires were compiled and the results were presented as Ward Profiles (for 19 urban sentinel sites) and Village Profile (for rural sentinel site namely Nala village).

**Bukoba Municipality**

Data collected from the CBMS census were checked, cleaned and validated before use. Data was processed through use of Stata. Descriptive statistics including frequency distributions cross tabulations, logistic regression and content analysis were employed for data analysis.

### 2.5. Data Validation

**Dodoma Municipality**

Validation of the results was an important step in which the communities in the pilot areas were informed about the CBMS survey through workshops. This activity also provided an opportunity to verify the findings, discuss the reasons for the identified issues and proposed possible interventions needed to address the problem areas.

Two workshops were conducted at the community level; one in K/Ndege ward and another in Nala Village. The participants in the workshops were: Local area Development Committee members, local influential people from the communities, Council representative, CBMS team members and enumerators. A few leaders from other surrounding local government units were also invited as a matter of awareness rising on CBMS.

**Phase 2**

Presentation of CBMS and GFC results was an important step meant for validation of the findings of the conducted surveys by the communities in the sentinel sites. This activity also provided an opportunity to verify the findings, discuss the reasons for the identified issues and proposed possible interventions needed to address the problem areas at local level.

Validation workshop was conducted at the community level in each sentinel site in Dodoma municipality, Morogoro municipality and Lushoto district. The participants in the workshops were: Local area Development Committee members, local influential people from the communities, Council representative, CBMS team members and enumerators. A few leaders from other surrounding local government units were also invited as a matter of awareness raising on CBMS. The identified issues
and interventions are summarized in Annex I. After the workshops, the CBMS team continued to improve the research report by incorporating the issues raised in the workshops and other analytical details.

At the municipal/district level, the workshops were conducted in May 2010. The objective was to share the findings and specific resolutions that were discussed in the validation session at the ward level workshops. The participants were councilors (3 members of finance committee of the councils and 2 representatives from the study areas), 3 Municipal Directors, the management team of the councils (departmental and sector heads), non-governmental organizations operating in councils and representatives from the office of District Commissioners. The output was the agenda for the forthcoming National level workshop and other CBMS dissemination sessions.

**Bukoba Municipality and Muleba District**

Respondents and community members validated the data in the general meeting. Local leaders approved the data in the Ward Development Committee and there was a special session with the stakeholders who, in the session, advised and validated the data.

**2.6. Database Management**

**Dodoma Pilot**

Detailed data analysis was done at the municipal level by a team of processors under the system administrator. All indicators were interpreted more comprehensively (as indicated in the section of findings) and at the same time the exercise of database computerization continued gradually in order to cope with time schedule. The development of computerized datasets took a bit more time (up to September 2006) to produce the final findings. The computerized data were very useful for verifying the manual results. The data also formed a basis of more convenient updating and retrieval of information for future use at municipal level. Meanwhile, the manually developed database continues to be used at ward and village levels as there are no computers. This was later presented at the municipal and national workshops.

**Bukoba Municipality**

The database was proposed to be managed and maintained at the district level in the Department of Community Development in the District Councils and at IRDP in the department of Research and Consultancy. The principal researchers in collaboration with the Information Technology unit was expected to update the database. The principal researchers will collect data and information direct from the respondents and National Bureau of Statistics (NBS) and those data was to be considered in the Database. In order to ensure that the data are accessible and owned by the community, the project
was expected to form a steering committee. This was expected to play the advisory role in the project. The committee composition was made up of ward development committee, one representative from the team, representative from the Ministry of Information, Youth, Culture and Sports, Ministry of Labor and Employment and Community Development from the Regional Administrative Secretariat (RAS).

Decision and policy makers, development planners at the district level, councilors, Ward Executive Officers (WEOs) and Village Executive Officers (VEOs) was expected to access the database so that they can retrieve information for use in their daily development activities. To enable the local leader’s access and understanding of the data, the same will be translated into Kiswahili language which is a national and working language in the country. Other groups to access the database include lecturers and students at IRDP and other higher learning institutions as they need data and information for training and new research. The accessibility of information will depend on subscription. Those who will be able to subscribe will access the database. Data provided to subscribers will be made anonymous (variables on names of respondents and their household members were to be excluded) to ensure confidentiality of information). Also, district councils where the data were supposed to be provided with copies of research document.

3. Uses of CBMS

*Monitoring Impact of Crisis*

The implementation of CBMS in Dodoma Municipality in 2006-2007 has captured spatial, time related and socio-economic data at the village, ward and municipal level.

The CBMS implementation in selected observatories in Tanzania also generated the data for the conduct of a study on the impact of the global financial crisis (Muro, 2010) using indicators of different dimensions of poverty at the household and individual level. In addition to the CBMS core indicators, specific indicators (including the outcome and impact indicators) were monitored to determine other specific impacts of the crisis.

**Table 2: CBMS Indicators for Monitoring Impact of Global Financial Crisis on Poverty, Selected Sites, Tanzania, 2010**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Nutrition</td>
<td>Number of households who reduced the number of meals</td>
</tr>
<tr>
<td></td>
<td>Number of households who concentrated expenditure on staple food</td>
</tr>
<tr>
<td></td>
<td>Number of households who ate less quality/less preferred foods</td>
</tr>
<tr>
<td></td>
<td>Number of households who purchased food on credit</td>
</tr>
<tr>
<td>Education</td>
<td>Number of households who withdrew children from school</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Number of households who cut back on education expenses</td>
</tr>
<tr>
<td>Income</td>
<td>Number of households who started a new economic activity</td>
</tr>
<tr>
<td></td>
<td>Number of persons below 15 years old who are working (not previously working)</td>
</tr>
<tr>
<td></td>
<td>Number of persons 60 years old and above who are working (not previously working)</td>
</tr>
<tr>
<td></td>
<td>Number of households who borrowed money from informal sources</td>
</tr>
<tr>
<td></td>
<td>Number of households who sold productive assets</td>
</tr>
<tr>
<td></td>
<td>Number of households who pawned assets</td>
</tr>
<tr>
<td></td>
<td>Number of households that abandoned from cultivation of cash crops due to price fall</td>
</tr>
<tr>
<td></td>
<td>Number of households who reduced expenses for luxuries (cultural activities, entertainment, dining out, and durable goods)</td>
</tr>
<tr>
<td></td>
<td>Number of households who cut back on transportation expenses</td>
</tr>
<tr>
<td></td>
<td>Number of households who cut back on communication expenses</td>
</tr>
<tr>
<td></td>
<td>Number of households who cut back on electricity expenses</td>
</tr>
<tr>
<td></td>
<td>Number of households who cut back on water expenses</td>
</tr>
</tbody>
</table>

These indicators were identified based on the relevant key transmission channels for Tanzania including overseas employment and remittances, local employment, foreign direct investment and aid, exports, tourism and different coping mechanisms adopted by the households in response to the crisis. The CBMS data was used to assess the accessibility by the households to the programs being implemented in the community.

**Poverty Profiling and Local Planning**

The CBMS implementation (Bashemera et al., 2016) in two mitaa and two villages in Bukoba and Muleba districts generated the data for poverty profiling of these areas covering 1,305 households.
The use of CBMS was meant to help the village and mtaa gather information on various socio-economic needs and other information necessary for local planning. The conduct of CBMS also allowed for the preparation of poverty profile of the study sites. The information gathered from the implementation of CBMS served as inputs to databases at the Village, Mtaa, District, and Regional levels.

**Youth Unemployment and Entrepreneurship**

Apart from generating necessary data to identify basic needs, CBMS also generated additional data to allow analysis of youth unemployment, entrepreneurship, and vulnerability. These include causes of youth unemployment, characteristics of youth entrepreneurs, and driving factors for youth to engage in business among others.

**Example 1: Youth Unemployment and Vulnerability**

The study was conducted in two districts of Kagera region where Rwazi and Bunkango Mtaa were involved from Bukoba Municipality and two villages namely Ilogero and Bunyagongo from Muleba District. The census aimed at analyzing the phenomenon of youth unemployment and its implications to youth vulnerability. It involved 1305 heads of households. Tablets instead of paper questionnaires were used for data collection. Interview for primary data and documentary review were used to collect primary and secondary data respectively. A total of 5190 people related information were collected through 1953 (37.6%) were youth between 15-35. The census found that, youth in labor force were 1936 (67.08%) of total labor force. 1936 (71.3% of youth were not employed where majority 879(43.1%) were female. 46% of youth were employed in the agricultural sector. About 179 (82%) male and female were not engaged in business. Majority of youth in business are single proprietors. Private money lenders (48%) were main sources of capital. While lack of capital is a factor hindering unemployment for women (29%) schooling is a factor leading to unemployment among males (35.3%). Business location and lack of fertilizer were challenges faced by youth in establishing business. Lack of required education made it difficult for youth to find jobs. Unemployed youth are vulnerable to inability to purchase necessities, inability to pursue further Education, inability to support children’s education, inability to participate in leadership. Logistic regression found that age 55-59 was significant for informal employment but had negative relationship. Rural was significant. Being female and job search between six years and above were statistically significant at p=0.05. Age between 20-35 years were highly statistically significant but with negative relationship. Regards to youth unemployment and vulnerability education except vocational education were highly statistically significant at p=0.05 on the inability to support children’s education. Kahororo and age between 25-44 years were statistically significant with positive relationship on the inability to support children’s education. The study concludes that youth unemployment may lead into youth vulnerability which may result into poverty and extreme poverty. The census recommend that female should be targeted for better quality education to enable
them to qualify for employment. Job seekers should be encouraged to engage into self-employment and accept employment in the informal sector in order to reduce duration for employment searching. Informal sector should be promoted and be formalized in order to qualify them as the same as formal employment opportunities. Government through the education authority should encourage integration of entrepreneurship module in the education curriculum and be taught at all levels so that the youth graduate with diversity interest on both formal and informal employment. The government should ensure the youth involvement in the process of employment development and make them appreciate that they are means and target in solving unemployment problem. The government and development actors should encourage youth’s employment creation initiatives and extend protection to other industries to allow maximum utilization of youth’s talent and skills in creating employment opportunities.

Example 2: Poverty Mapping

The census was conducted in two mitaa and two villages in Bukoba and Muleba districts. It involved 1305 head of households who represented 5,191 people. The census aimed at analyzing the poverty status in Bunkango and Rwazi mitaa as well as Ilogero and Bunyagongo.

Data were collected by tablets, uploaded using 7Zip and cleaned using excel to get a clean dataset ready for analysis. A Stata program was used for the analysis. Descriptive statistics including frequency distributions cross tabulations and logistic regression were employed for data analysis. Content analysis was used for the qualitative data obtained through Focus Group Discussions (FGDs) and semi-structured interviews with different respondents.

Questionnaire was pre-tested, corrected and posted in the tablets. Trained research assistants were used in data collection. Questionnaire was translated into local language (Swahili) to ensure validity and reliability.

The study found that, more than 45 percent in both districts were children of the heads of households. More than 50 percent were married. Labor force is more than 50 percent. More than 99 percent of population aged 19 years and above were not enrolled into tertiary education. More than 60 percent of populations aged 14 -17 years were not enrolled into secondary school. More than 60 percent of population aged 15 years and above were not employed. More than 60 percent of populations aged 14 -17 years were not enrolled into secondary school. More than 60 percent of population aged 15 years and above were not employed. More than 70 percent in both districts did not own non-agricultural assets. More than 50 percent of populations were not getting three meals per day. More than 60 percent of the population had no sanitary toilets. More than 90 percent of population between 18 years and above did not participate in the constitution amendment discussion. About 72 percent of population of Muleba districts had no access to safe water.

The study recommended that the government should prepare strategies to address the identified unacceptable standards of poverty indicators. The community should take initiatives to solve the identified unacceptable indicators by ensuring full utilization of available potentials and opportunities.
Example 3: Potential Youth Employment Opportunities

The Community-based monitoring system (CBMS) was introduced in Bukoba Municipality and Muleba District to establish local monitoring system which enabled districts collect data on different dimension of youth development. Households’ profile and rider questionnaires were administered to heads of households and youth respectively. The survey intended to gather data which were the bases in preparation of youth employment plans. The survey covered two 1,305 households from Muleba District and Bukoba Municipality. Whereas, Muleba represents the rural areas and Bukoba Municipality represents the urban settings. The primary objective of the survey was to study the phenomenon of youth unemployment and its implications to youth vulnerability. The rider questionnaire was administered especially to youth so as to explore the link between youth unemployment and vulnerability. Clear youth employment plans will lead to informed decision among policy makers on youth employment opportunities creation.

One of the objectives of the survey was to explore the available and potential youth employment opportunities. In order to effectively address the objective, the employment status by sex in the CBMS Census Site were identified. Results were as shown in Table 3.

Table 3: Employment status in the selected areas in Bukoba Municipality and Muleba District

<table>
<thead>
<tr>
<th>Employed</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Magnitude</td>
<td>Proportion</td>
<td>Magnitude</td>
</tr>
<tr>
<td>Youth</td>
<td>483</td>
<td>56.9</td>
<td>290</td>
</tr>
<tr>
<td>Non-Youth</td>
<td>366</td>
<td>43.1</td>
<td>220</td>
</tr>
<tr>
<td>Total</td>
<td>849</td>
<td>100.0</td>
<td>510</td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth</td>
<td>1,453</td>
<td>71.3</td>
<td>574</td>
</tr>
<tr>
<td>Non-Youth</td>
<td>584</td>
<td>28.7</td>
<td>240</td>
</tr>
<tr>
<td>Total</td>
<td>2,037</td>
<td>100.0</td>
<td>814</td>
</tr>
</tbody>
</table>

Source of basic data: CBMS Survey, Bukoba Municipality and Muleba District, 2016

The available and potential youth employment opportunities were explored by considering youth employing sectors in the survey sites. Three sectors including Agriculture, Petty Business and employment were identified as the sources of employment. The levels of employment in each sector were as shown in the Figure 3.

Figure 3: Levels of youth employment in various sectors by sex
According to Mjema, (1997), the causes of youth unemployment are diverse whereby, apart from economic growth performance youth tend to suffer from other problems such as lack of relevant education and skills, lack of adequate training, lack of experience and information about employment opportunities and their employability. There is also an aspect of cultural factor where female youths are not preferred in some jobs due to believe that their role is confined to household duties which often are unpaid or underpaid (Bagachwa, 1991; Luvanga, 1994; Mjema 1997). Therefore, in order to determine the causes of youth unemployment, the study identified the challenges facing youth in finding employment (jobs) and the results were as presented in Table 4.

<table>
<thead>
<tr>
<th>Table 4: Challenges Facing Youth in Finding Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Lack of adequate required level of education</td>
</tr>
<tr>
<td>Lack of required technical education</td>
</tr>
<tr>
<td>Lack of experience</td>
</tr>
</tbody>
</table>
The Tanzania Poverty and Human Development Report 2002 conceptualize vulnerability as the risk or probability of an individual, household or a community experiencing a decline in well-being.

### Table 5: Youth Unemployment and Vulnerability

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Employed</th>
<th>Unemployed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Magnitude</td>
<td>Proportion</td>
<td>Magnitude</td>
</tr>
<tr>
<td>Inability to purchase necessary needs i.e. food, clothes shelter</td>
<td>227</td>
<td>50.7</td>
<td>825</td>
</tr>
<tr>
<td>Inability to access health services</td>
<td>109</td>
<td>24.3</td>
<td>668</td>
</tr>
<tr>
<td>Inability to pursue further education</td>
<td>30</td>
<td>6.7</td>
<td>257</td>
</tr>
<tr>
<td>Inability to meet education requirements of my children</td>
<td>83</td>
<td>18.53</td>
<td>412</td>
</tr>
<tr>
<td>Inability to participate in leadership/or raise my opinion in my community</td>
<td>9</td>
<td>2.01</td>
<td>62</td>
</tr>
<tr>
<td>Migration because of problems such as lack of food, shelter, health service, education, safety and security</td>
<td>12</td>
<td>2.68</td>
<td>103</td>
</tr>
<tr>
<td>Forced to engage in some illegal/immoral behavior</td>
<td>0</td>
<td>0</td>
<td>28</td>
</tr>
</tbody>
</table>

Source of basic data: CBMS survey, Bukoba Municipality and Muleba District, 2016

### Findings

According to the CBMS data collected, about 71.3 percent of the unemployed population in Muleba district and Bukoba Municipality were youth. The survey results in Table indicate that, unemployment rate among female youth was higher (43.15 percent) than male youth (28.18 percent). The majority of female youth (46.04 percent) followed by family activities (42.37 percent) were employed in petty business. On the other hand, the large proportion of the employed youth was male (45.56 percent) whereby employed female were few about (35.52 percent) as depicted in Figure 1.
The findings in Table 2 show that Lack of require academic qualification about 278 (25.02 percent) among male and about 401 (36.09 percent) among female which is higher compared to their male counterparts. The CBMS census report indicated that experience is the second challenge facing youth in finding employment. The challenge is found to affect more female than male. For example, the CBMS census result indicated that about 211 (18.91 percent) of male and 320 (28.8 percent) female reported work experience to be among the challenges in finding employment. Example when youth apply for employment in the formal sector, they meet a condition of at least two work experiences of which a youth does not have. The option of informal sector experience as an obstacle is not visible here the problem is capital.

The survey results in Table 3 revealed that, there is a link between youth unemployment and vulnerability. The majority of unemployed youth suffer the most in all forms of vulnerability unlike their employed counterparts. More than 60 percent of unemployed youth reported that they were unable to meet basic necessities like food, shelter and clothes while 50 percent of the employed were facing the same situation. The same table indicates that more than 50 percent of the unemployed youth were not able to access health services unlike those who were employed (about 20 percent). The survey results also revealed the symptoms of vicious cycle of poverty where more than 30 percent of the unemployed youth were not able to meet education expenses for their children.

**Policy implications and recommendation**

Based on the results from the census, the following recommendations are drawn to reduce youth's vulnerability resulting from unemployment.

i) Job seekers should be encouraged to engage in self-employment and accept employment in the informal sector through promotion and formalization of Informal sector in order to qualify them as the same as formal employment opportunities.

ii) The government should ensure that the recommendations in the Youth and Development Policy and the National Five year Development Plan 2016/17 – 2020/21 including internship in the YDP to enable youth gain experience which makes them to meet the condition of experience.

iii) The government through the education authority should encourage integration of entrepreneurship module in the education curriculum and be taught at all levels so that the youth graduate with diversity interest on both formal and informal employment.
iv) The government should ensure the youth involvement in the process of employment development and make them appreciate that they are means and target in solving unemployment problem.

v) A user friendly, accessible information system mechanism should be developed to allow youth to access update youth employment related information. Youth should be encouraged to form groups in order get access to financial services.

vi) Ensuring youth targets are built into development plans and strategies and appropriately resourced and monitored. Bukoba and Muleba districts should implement the Community Based Monitoring System by maintaining the CBMS database, Use CBMS database in the youth employment and development planning process.

**Implementation of CBMS in Tanzania**

The study was on Youth Employment and Vulnerability. Youth in the study area decided to put some recommendation into practice.

They attended Youth Camping in Kasulu where they were trained on wells digging, environmental conservation, land use planning, soap making, fish keeping, brick making and resources mobilization.

After camping they formed groups, they prepared their constitution, registered their group called “NURU YA VIJANA” in Kiswahili, when translated into English is “LIGHT OF YOUTH” Activities: they are dealing with poultry where they are keeping Local chicken and Ducks.

Expectations: They are in the process of mobilizing resources for buying incubator which will enable them to hatch chicks themselves.

Since the financial and technical supports were focusing on research, there is a need of designing measures to support youth-initiated employment programs.

**References**


1. Context and Rationale for the Implementation of CBMS

1.1. Background

The socioeconomic development and improving people’s living conditions are at the center of current debates both at researchers level than policy makers, donors, and also household. To this end, efforts are being made by States around the world.

The objective of this paper is to provide a system to support local and national authorities in the development and evaluation of policies for improvement of Nigerien conditions of life. It is structured in five sections successively including the economic situation in Niger, the purpose and interest of a CBMS in the Nigerien context, an organization scheme proposal and the limitations and challenges for its establishment.

Niger is classified by the World Bank as low income countries (The World Bank, 2014). The nominal Gross Domestic Product (GDP) per capita was 205.6 thousand FCFA in 2013 (Institut National de la Statistique du Niger [INS-NIGER], 2014) 170.4 in 2008 and 183.7 in 2011 corresponding to respective increases of 20.7% and 11.9%. In real terms, GDP per capita varies saw tooth over the period 2008-2013. It had its strongest growth in 2008 and 2012 with respectively 5.9% and 6.7% annual growth preceded or followed by deceleration or setbacks equally marked. Thus the aggregate has declined by 4.1% in 2009 and 5.5% in 2011. This product variation is significantly influenced by the primary sector, particularly agriculture, because of its importance in the formation of GDP. Indeed, the climatic and environmental conditions combined with farming and grazing practices in the country explain the variability of agricultural production.

This predominance of agriculture also appears in the labor force. Agriculture, hunting and forestry account for nearly 79% of the 4.4 million of employed persons in Niger is (INS-NIGER, 2012) in 2012.

The precarious living conditions of people in Niger, as elsewhere in sub-Saharan Africa has been exacerbated by the structural adjustment programs adopted to revive economic growth, as these programs were accompanied with conditionalities restricting considerably population’s access to basic social services (health, education and transfers of any kind). In addition, the country has experienced political instability and a series of devastating drought during the period from 1984 to 1999 that has not helped to improve the economic and social situation since the mid-1980s.

Thus, the National Institute of Statistics (INS) estimated to 63% the proportion of people living below the poverty line in 1993 in Niger. This incidence has diminished from 62.1% (INS-NIGER, 2005), 59.5% (INS-NIGER, 2008) to 48.2% (INS-NIGER, 2013a) respectively in 2005, 2008 and 2011. If these global trends continue, the proportion of poor would be in 2015, far from the target of 31.5% set in the first goal of the Millennium Development Goals in Niger (INS-NIGER, 2013b).
In terms of living conditions, the net enrollment rate at primary school was at a low level until 1992, had a relatively remarkable rise over the period 1999-2008. Indeed, it increased from 18.2% in 1992, 28.9% in 1999 to 58.6% in 2008 and would be at a level of 70% in 2012. Moreover, significant progress has been recorded in children's health between 1992 and 2012. Thus, the mortality rate of children under five has decreased from 318‰ in 1992 to 127‰ in 2012 for a national target of 106‰ in 2015. As for infant mortality rate per thousand live births, it dropped from 123.1 in 1992 to 63.2 in 2010 and stands at 51 in 2012. In contrast, the Niger record one of the highest maternal mortality rates in the world. The number of deaths per 100,000 births shows a saw tooth evolution. It remained stable at a high level (700) on the period 1990-2001 to 535 in 2012. The country has made significant achievements regarding access to an improved water source in relation to the goal he has set for 2015. Indeed, the proportion of the population using an improved drinking water source, increased from 22.3% in 1992 to 50.1% in 2008 and 66.5% in 2012 beyond the target defined for MDG. The proportion of the population using toilets already very low in 1992 (11.9%) fell in 2006 (8.4%) before recovering consistently in 2012. Thus just 1 of 5 Nigeriens (19.7%) has access to improved sanitation (INS-NIGER, 2013b).

Today, Niger implements the Economic and Social Development Plan (PDES 2012-2015 followed by the PDES 2017-2021) to improve the living conditions of Nigeriens in line with the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) as well as a number of international agreements to which the country has subscribed.

Community monitoring mechanisms are based on the principle of community participation in the monitoring of a number of phenomena, events, or circumstances of interest. It may be monitoring women's access to ante and postnatal pregnancy health services as is the case of India in the pilot province of Maharashtra where Kulkarni and Doke showed that it provides benefits for maternal care to women by the extent of awareness (Kulkarni & Doke, 2013).

Community monitoring has also been proposed to monitor emissions from deforestation and forest degradation in developing countries (Pratihast, et al., 2013). The device proposed by Pratihast et al. (2013) has the particularity to collect data from mobiles and send them via SMS, MMS or otherwise. The authors have shown that it is possible with such data to improve observations and knowledge of the phenomenon of deforestation, but also significantly reduce the cost of such monitoring. They also presented the disadvantages of a Community system of this kind and ways to overcome them.

In the area of evaluation of policies against poverty, the most illustrative example of community monitoring is probably the Community-Based Monitoring System (CBMS) established in the Philippines (Ilarde & Reyes, 2003) and based on earlier works of Florentino and Pedro (1992).
1.2. Local Government Structure

In Niger, the subnational government is comprised of 3 levels which include 8 regions led by a regional council and council leader; 36 departments (sub-provinces) led by councils and council leaders; and 265 municipalities led by municipal councils and a mayor\(^1\). Municipal councils have both elected members with decision-making authority as well as advisory members, usually leaders of community groups and administrative units. The central government has decentralized trusteeship bodies at each local level of government, including governor and prefect positions, that weigh in on legal developments. However, this control mechanism is often not used in practice as prefects and their representatives often lack the power to carry out this authority.

According to Sene and Ouedraogo (2008), the municipal elections in 2004 marked an important step in the lengthy process of reforms designed to install a decentralised political and administrative system. At the end of this democratic decentralization process, 265 municipalities were established (231 rural and 52 urban) as the basic territorial units. The election brought forth the mandate for elected officials to design, plan, and implement development measures in response to the priority needs of the people.

Decentralisation in Niger is seen as a strategy to get ordinary people more involved in the process of poverty reduction. It has led to the introduction of elected municipal bodies and provides for local organisations to be involved in identifying, planning, implementing and M&E of municipal development measures (Sene and Ouedraogo, 2008)

1.3. Review of Existing Monitoring Systems

Poverty combines, if we take into account all the schools of thought (welfare, essential needs, and capabilities), several complementary dimensions (Asselin & Dauphin, 2000). Therefore, the one that lives a population can take many forms for which specific responses are required. It is then necessary to pose a diagnostic to determine the profile of poverty that exists. Then the actions to be taken in response for the improvement of living conditions should be properly targeted to maximize efficiency and act on the layers and factors in question.

In Niger, much of the information available on the living conditions of the population, especially the quantitative, comes from ad hoc national censuses and surveys conducted by the National Institute of Statistics (INS) and often at varying intervals to such an extent that it does not allow a complete representation.

<table>
<thead>
<tr>
<th>Indicator/Category of Indicators</th>
<th>Main collection operation</th>
<th>Year of implementation</th>
<th>Periodicity</th>
<th>Minimum scale of representativity</th>
</tr>
</thead>
</table>

\(^{11}\) https://localdemocracy.net/countries/africa/niger/
Table 1 show, first, that only the General Census of Population (RGP) presents information to the final stage of administrative disintegration. In general, it cannot be lower than the department level for major investigations given the cost it generates. Furthermore, indicators on the state and structure of the population (those within the demographic and health indicators) and living conditions are irregularly produced with respect to the theoretical periodicity recommended. Finally, operations with relatively satisfactory regularity address food vulnerability and nutrition and do not produce statistics on the scale of municipalities.

There are no existing monitoring systems at the local level in Niger first by lack of human and financial resources but also and especially because the development programs and the fight against poverty in Niger have not reached a High level of decentralization. Nevertheless, there are some specific monitoring systems implemented by NGOs such as the Early Warning System and Response to Emergencies (SAPRU) in Kanambakache and “Les communes de convergence” program of the United Nations agencies in specific communes in the country.

### 2. Key Features of CBMS

The organization of a CBMS should result as much as possible on a diagnostic of local authorities’ strengths and weaknesses (commune, department, and region) within it will be.

**Subjective Diagnostic on strengths and weaknesses of local authorities in Niger**

The main advantages of decentralized entities of Niger for the establishment of a CBMS are:

- a) the relatively great need of local governments for planning statistics;
b) the existence of basic demographic statistics from the RGP / H 2012;

c) the existence of the geographical data updated by the National Geographic Institute of Niger (IGNN) and the National Institute of Statistics (INS) according to the last administrative subdivision of Niger.

Conversely, municipalities in Niger have a number of handicaps for the establishment of a CBMS. It is mostly:

a) limited human and financial resources;

b) poor provision of infrastructure (communication, energy and telecommunications); and

c) poor access to basic social services (civil status, schools and health centers).

Therefore, based on the structure adopted for the RGP / H2012 and who had, in his time, consecrated working with decentralized entities, organizing CBMS should be guided by two principles:

a) the separation of components in advisory and executive structures; and

b) the temporary nature of some of the human resources of the device.

Schematically, the organizational chart of CBMS could take the form shown in Figure 1.
The organizational chart of the CBMS has four (04) structures. They are divided into two (02) advisory structures (the CCC and CDC) and two implementation structures (CNC and ULE) with a structure of the two categories for each of the national and local government levels.

The National Coordination Unit (CNC) is the central and technical organ of the device. Its attributions are:
a) define the list of indicators concerned with CBMS;

b) design the analyze plans of the main indicators;

c) design the indicators collection tools;

d) carry out specific analyzes on issues related to people’s living conditions from DCSCV data and the drafting of specific reports;

e) review and amend, if necessary, the organization and the results from local execution units (ULE); and

f) convene CCC session.

The UNC is permanent and composed of INS executives.

The second implementing body is the local execution unit (ULE). It belongs to this unit to:

a) proceed to the selection, training and recruitment of DCSCV collection agents (team leaders and enumerators);

b) consolidate and process the data from the CBMS’s collection phases;

c) transmit files made and generally collaborate with the CNC;

d) produce the statistics and information that may be required by the Commune Council and the Mayor of the Commune; and

e) convene the CCL.

The ULE is a permanent body even though it benefits from temporary technical assistance in the collection, consolidation and processing data from the Regional Direction of the National Institute of Statistics (DR/INS).

Specifically, it is composed of a data manager coupled with an assistant and a regional technical assistant supervising the activities of field staff on collection phases.

The Central Advisory Committee (CCC) is a structure convened for the CBMS implementation composed by:

a) two (02) representatives of the INS;

b) one (01) representative of the Statistics Directorate of the Ministry of Primary Education, Literacy, Promotion of National Languages and Civic Education (MENA / PLN/EC);
c) one (01) representative of the Directorate of Statistics of the Ministry of Interior, Public Security, Decentralization and Religious Affairs (MI / SP / D / AR) symbolized by the town hall in the municipality; and

d) one (01) representative of the Statistics Department of the Ministry of Public Health (MSP).

The Central Advisory Committee is the national consultative body in charge of:

a) to consider and propose amendments to the list of indicators proposed by the INS will be concerned by the CBMS and the specific subject approached from the rider questionnaire;

b) consider and propose amendments to the technical tools of CBMS namely pivot questionnaire, the attached questionnaire, manuals of agents and the practical organization of work;

c) provide any other elements that may help to the functioning of CBMS; and

d) proceed to the validation of the results obtained from the CBMS.

This is not a permanent body which meets in sessions convened by the CNC according to an agenda.

Like the CCC, the local advisory committee is a temporary structure that is composed of:

a) one (1) representative of the National Institute of Statistics (NIS) through its Regional Directorate;

b) one (1) representative of the Ministry of Primary Education, Literacy and Promotion of National Languages (MENA / PLN);

c) three (3) representatives of the Ministry of Interior, Public Security, Decentralization and Religious Affairs (MI / SP / D / AR) symbolized by the town hall and traditional authority in the municipality; and

d) one (1) representative of the Ministry of Public Health and the Fight against Endemic Diseases (MSP).

The Local Advisory Committee (LAC) is the advisory body at the local level. Its roles are:

a) review and propose amendments to the list of indicators proposed by the INS that will be concerned by the CBMS and the specific theme addressed from the rider questionnaire;

b) review and propose amendments to the technical tools of CBMS namely core questionnaire,
the rider questionnaire, manuals of agents and the practical organization of work;
c) bring any other items that would help to the functioning of CBMS; and
d) proceed to the validation of the results obtained from the CBMS.

2.1. Adjustment of CBMS Methodology to Niger’s Context

2.1.1. Core Poverty Indicators

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food security</td>
<td>Proportion of households with access to food (Food Consumption Score [FCS] and Household Diversity Score [HDDS])</td>
</tr>
<tr>
<td>Education</td>
<td>Literacy rate of young adults (15-24)</td>
</tr>
<tr>
<td></td>
<td>Gross enrollment ratio in primary education</td>
</tr>
<tr>
<td>Health</td>
<td>Proportion of children 0-4 who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy-related causes</td>
</tr>
<tr>
<td>Environment/Living</td>
<td>Proportion of population with access to safe drinking water</td>
</tr>
<tr>
<td></td>
<td>Proportion of population with access to sanitation</td>
</tr>
<tr>
<td></td>
<td>Mobile phone per 100 inhabitants</td>
</tr>
<tr>
<td></td>
<td>Percentage of households living in dwellings where the floor is cement or tile</td>
</tr>
<tr>
<td>Economy</td>
<td>Activity rate (Labor Force Participation Rate)</td>
</tr>
<tr>
<td></td>
<td>Unemployment rate</td>
</tr>
<tr>
<td></td>
<td>Demographic Dependency ratio</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with income below poverty line/threshold</td>
</tr>
<tr>
<td>Health (from SPIS)</td>
<td>Utilization of mosquito nets to children under 5 years</td>
</tr>
<tr>
<td></td>
<td>Utilization of mosquito nets to women in pregnant</td>
</tr>
<tr>
<td></td>
<td>Proportion of births attended by skilled personnel</td>
</tr>
<tr>
<td></td>
<td>Percentage of women who received antenatal care at least once during their pregnancy</td>
</tr>
<tr>
<td>Demography (from SPIS)</td>
<td>Proportion of persons who emigrated from their residence</td>
</tr>
<tr>
<td></td>
<td>School age population</td>
</tr>
<tr>
<td>Social protection</td>
<td>Proportion of informal workers to the labor force</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Proportion of informal workers with health coverage scheme</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons who have other social protection scheme (elderly, unemployment, disaster...)</td>
</tr>
<tr>
<td></td>
<td>Households average contribution for a health contributory cover within the community</td>
</tr>
<tr>
<td></td>
<td>Households average contribution for basic education contributory cover within the community</td>
</tr>
<tr>
<td>Health</td>
<td>Coverage in health infrastructure</td>
</tr>
<tr>
<td></td>
<td>Nurse per capita ratio</td>
</tr>
<tr>
<td></td>
<td>Physician per capita ratio</td>
</tr>
<tr>
<td></td>
<td>Midwife per woman of childbearing age ratio</td>
</tr>
</tbody>
</table>

### 2.2. Pilot Data Collection

#### 2.2.1. Data Collection Instruments

The data collection of the CBMS was conducted using three (3) questionnaires, core, rider on SPIS and community-level household questionnaires, using the CBMS Scan in android tablets. With the support of the CBMS program to research team, the census was carried out with mobile-based approach CBMS Scan.

#### 2.2.2. Identification and Training of Enumerators

There were 4 teams on the sites and each team had 5 enumerators. Successively, there were four (4) placements of some members of the research team on the pilot sites for the presentation of project and establishment of local advisory committee, pre-test and test of CBMS and for the local workshop of result presentation and enrichment. Two members of the research team supervised the operations on the pilot site.

#### 2.2.3. Study Area

The questionnaires were administered within three (3) large villages of Kanambakatché and respect nearly 2,000 households
2.3. Data Processing

Data from the CBMS Scan were processed and consolidated in the CBMS Portal. The data collected will be analyzed primarily using statistical techniques and econometrics (statistical tests, ANOVA, regression).

2.4. Data Validation

The process of data validation is done in the community by the local advisory committee and central advisory committee at this level.

2.5. Database Management

The Database is managed by ONAPAD, organizations and individuals defined after the stage of designing of the CBMS. It will be update by one/many member(s) of the local health or education system who has participated to the data collection and that should been do well for this (training, computer, printer, and generator). There is a specific agreement with LGU that may have access to the information collected.

3. Uses of CBMS Data

The implementation of CBMS in selected sites in Niger generated the required household and individual level data for the preparation of poverty profile of 3 villages in Kanambakatché commune covering information for at least 1434 households and about 10,976 individuals on their situation in terms of the different dimensions of poverty as shown by the CBMS indicators (see Figure 2 and 3 for example of results).

Figure 2: Proportion of the population with access to safe drinking water in selected sites, Niger, 2017
CBMS was also used to generate the required data (see for example Figure 4) to assess issues on social protection for the informal sector. In particular data generated from the CBMS pilot sites was used to quantify the welfare of individuals and household of informal sector without social protection.

**Figure 3: Proportion of the population with access to sanitation in selected sites, Niger, 2017**

<table>
<thead>
<tr>
<th>Site</th>
<th>Male</th>
<th>Female</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanembakché</td>
<td>11.3%</td>
<td>15.9%</td>
<td>39.1%</td>
</tr>
<tr>
<td>Dan Kori</td>
<td>80.3%</td>
<td>75.0%</td>
<td>84.1%</td>
</tr>
<tr>
<td>Zaroumey</td>
<td>79.1%</td>
<td>75.0%</td>
<td>80.3%</td>
</tr>
</tbody>
</table>

**Figure 4: Proportion of informal sector workers in selected sites, Niger, 2017**

<table>
<thead>
<tr>
<th>Site</th>
<th>Male</th>
<th>Female</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanembakché</td>
<td>80.3%</td>
<td>72.3%</td>
<td>73.5%</td>
</tr>
<tr>
<td>Dan Kori</td>
<td>85.7%</td>
<td>66.7%</td>
<td>84.1%</td>
</tr>
<tr>
<td>Zaroumey</td>
<td>73.5%</td>
<td>81.3%</td>
<td>72.3%</td>
</tr>
</tbody>
</table>
The aim of CBMS require, for the community in which it will be set up, to have certain autonomy of management and decision to take advantage of the data that will be collected. In Niger, the smallest administrative entity corresponding to this pattern is the commune. The CBMS should therefore ideally be linked to a commune which it covers the monitoring needs of living conditions. CBMS can contribute to economic and social development by making available to decision makers from all jurisdictions of data for reliable decision necessary for the development and evaluation of policies and programs.

The main goal pursued through this work is to develop a CBMS that can periodically collect the information's necessary to calculate and analyze a number of indicators of poverty (in its multifaceted approach) in order to measure and understand effects of politics and actions against underdevelopment and poverty.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

Data requirements to monitor and evaluate progresses in poverty reduction are enormous. Originally, the National Living Standard Survey (NLSS) 2003/2004 was commissioned. The data obtained from this process is, however, limited to monetary measures of welfare which is grossly inadequate to monitor poverty in local communities of Nigeria. As a solution to this, the Core Welfare Indicator Questionnaire (CWIQ) was commissioned in 2006. Compared to the NLSS, the CWIQ is easy to administer and it covers a wider spectrum of core poverty indicators that were often overlooked in the NLSS. While the CWIQ is important and crucial, it hardly produced disaggregated data to be able to monitor poverty at the community level. Such data shortfalls make it difficult to design effective poverty targeting policies at the community levels. In this regard, the CBMS-Nigeria was proposed in order to generate and implement the Community-Based Monitoring System that is responsive to the needs of local communities. It will was used to monitor the effect of the global financial crises on the poverty status of local inhabitants and their coping strategies.

The implementation of the CBMS-Nigeria was enhanced greatly by the fiscal federalism structure of the country. This enabled mobilisation of the local communities through the local governments. The CBMS for Nigeria used a simple and easy to administer questionnaire on selected poverty indicators that were chosen in line with the development needs of the local communities and the deprivation suffered by the communities. The field site is Edem community with a population of 31,000 and about 5,000 households in 2006. It is the largest community in Nsukka Local Government Area in the South eastern part of Nigeria.

The pilot implementation of CBMS in Nigeria in 2009, initiated by the University of Nigeria with support from the PEP-CBMS Network, was in response to limitations in available data and existing data collection mechanisms for poverty and welfare analysis and management in the country. Data shortfalls, particularly in terms of consistency and aggregation of available data, makes it difficult to design effective poverty targeting policies at the community levels. It was under this context that the development and implementation of a CBMS in Nigeria was initiated. The adoption of the CBMS methodology in the context of Nigeria, taking the case of Eddem community in Nsukka local government area, was also intended to generate micro level data that was used to monitor the effect of the global financial crises on the poverty status of households and examine their coping strategies to the crisis.
1.2. Local Government Structure

The local government is the third and last tier of government in Nigeria. Aside from the communities themselves, the local government is the nearest government to the people. There are 774 local governments in Nigeria, but the number of LGAs in each state varies from eight in Bayelsa state to 44 in Kano state. Their populations also vary. With a national population of 142 million, an average local government has a population of about 190,000; and with a typical Nigerian household size of six, this gives about 32,000 households.

A typical local government structure in Nigeria is presented in Figure 1.

Figure 1: A simplified Structure of the Local Government in Nigeria

A local government has the executive, legislative, and judicial arms of governance. The legislative arm is composed of the elected government councilors. This body is responsible for making laws that govern the local government. The judicial arm is composed of customary courts which are

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1 Drawn from Achile, A. & Ichoku, H. (2009)
responsible for the interpretation of customary laws. The executive arm of governance is made up of the chairman, some of the councilors, as well as appointed advisers. The public service structure of the local government is made up of the Head of Service (HOS), the heads of various departments, and other public servants. All these are responsible for the citizens of the various communities that make up the local government. The structure of the local government also entails that they perform primary functions that have direct impact on the lives of the citizens. According to the Nigeria’s 1999 constitution, the basic functions of the LGAs include:

a) Economic development of the LGA;
b) The provision and maintenance of primary, adult and vocational education;
c) The development of agriculture and natural resources; and
d) The provision and maintenance of health services.

On account of its nearness to the people, the local government also provides a primary organizational frame for implementing some social programmes either by the state or the federal government. For example, poverty alleviation programmes, child immunization programmes, and others. These are frequently executed using the local government structure as a vehicle.

Poverty alleviation is one of the departments in the Local Governments in Nigeria. This department implements both local and national government programmes on poverty alleviation. The national accelerated poverty eradication programme (NAPEP) has linked with each local government. The state’s projects and that of the local government’s on poverty alleviation may differ due to natural and material resources available, but the aim is just the same. The federal executive council can influence the amount and use of some of the funds available for all the local governments.

The local government council of Nigeria is responsible for coordinating the activities of the local governments and often meets with the federal executive council to discuss issues affecting the local governments. The policy programmes and projects, specifically federal government programmes, and their objectives are determined through this forum. Each state, on the other hand, exercises influence on the local governments under their jurisdiction and may have its own special policy and projects.

**Fiscal Relation with Other Tiers of Government**

The constitution of Nigeria provides for three tiers of government: the federal, states, and local governments. There are 36 states in Nigeria and a Federal Capital Territory (FCT) Abuja. There are also 774 LGAs. The constitution also provides for fiscal decentralization among these tiers of government. The collection of the most important tax bases, including petroleum tax, import and exercise duties, company tax, and value added tax (VAT) is done at the federal level. Revenue from these tax bases are pooled and shared vertically among the three tiers of government and horizontally among the 36 states and 774 local governments on rule-based method. The existing
sharing formula allocates about 47% of total revenue to federal government, 26% to states, and 20% to local governments. The balance of 7% is used for national emergencies, FCT Administration, Ecology, and Derivation Funds.

Apart from these main tax bases from which revenue is shared at the national level, there is also a tax basis assigned to each tier of government which constitutes its own internally generated revenue (IGR). For example, the income tax of people employed by the state is exclusive to the state. However, states are obliged to allocate 10% of their IGR to LGAs within its jurisdiction. The LGAs then consolidate their revenue from their allocation at the federal, their share of the state’s IGR, and the revenue they generate internally from the less significant tax bases assigned to them by the constitution in order to execute their development programmes. While the local governments are significantly fiscally independent, they are also under laws made by the state legislature. The LGAs prepare their own budgets based on expected revenue from the federal and state allocations and their own IGR, but their fiscal behavior is also monitored and regulated by the state government.

**Governance at Community Level**

Under the local government structure are communities that make up the local government. The number of communities that make up any given local government varies. The nature and effectiveness of the communities as development agents also vary from one part of the country to another and between urban and rural areas. In some parts of the country that inherited feudalistic communal structure, particularly in the north of the country, the community chiefs represent the rallying point for community action for development. In other parts of the country without such feudalistic setup such as that which prevails in the south and some other parts of the north, the town/village union governments are the rallying point for community development. They complement the efforts of the local governments. In most cases, the towns or cluster of villages constitute the Wards on which basis representatives are elected into the local government. The town/village union governments are also democratically elected by the people within the villages or towns.

While these town/village union governments are not formally included in the constitution of the country, they provide very important vehicles for government development programmes. Frequently, the local governments have to consult the town/village unions that make up the local governments with regards to critical economic and social development particularly on security matters. While the constitution does not assign any tax basis to the town unions for generation of revenue, unlike local governments, the town unions often mobilize revenue from different sources including donations and revenue yielding projects such as water-boreholes to execute their development programmes. It is these town unions that often build schools, health centres, and artery roads in their communities and hand over to local and state governments for staffing and management.
1.3. Review of Existing Monitoring Systems

As earlier noted, data requirements to monitor and evaluate progresses in poverty reduction are enormous. One of the sources of poverty data in Nigeria is the National Living Standard Survey (NLSS) 2003/2004. The data obtained from NLSS is limited to monetary measures of welfare which is inadequate to monitor poverty in local communities of Nigeria. As a solution to this, the Core Welfare Indicator Questionnaire (CWIQ) was commissioned in 2006. Compared to the NLSS, the CWIQ is easy to administer and it covers a wider spectrum of core poverty indicators that were often overlooked in the NLSS. While the CWIQ is important and crucial, it hardly produced disaggregated data to be able to monitor poverty at the community level. Such data shortfalls make it difficult to design effective poverty targeting policies at the community levels.

A good community poverty tracking and monitoring mechanism will require all or most identifiable dimensions of poverty to be explored. This is attributed to the need to identify indicators on which poverty can be measured and assessed especially at the community level. From a pure income based approach, we may define poverty as being purely based on an individual or household having less than a predetermined threshold of income at a given period of time. The idea of multidimensionality in poverty measuring has proved that neoclassical unidimensional poverty measurement using household income is grossly limited and there is need for inclusion of other dimensions of deprivation such as access to health care and basic facilities, educational services, employment opportunities, and so on (Reyes & Valencia, 2003). Borrowing from the Philippines’ model of the Micro Impact of the Macroeconomic Adjustment Policy (MIMAP), the following indicators are often identified to capture poverty dimensions. These include health, nutrition, housing, water and sanitation, basic education, income, employment, and peace and order. These and others that are directly linked to the community of interest were explored considerably.

**Conceptual Issues**

Because of the multidimensional nature of poverty, it becomes more challenging to measure it. However, through a decentralized, community based, and participatory approach, the poor are made equal partners in eliminating poverty and enabling themselves to change their fortunes. Some questions that readily come to mind are: Who are the poor? What are the characteristics of the poor? Is poverty a permanent or transitory status? How do we track poverty over time? Is poverty in the mind? Can poverty status be empirically and unambiguously measured in a generally acceptable form? Attempts to provide answers to these and other questions motivated this study and the review of various definitions of poverty.

The House of Commons Scottish Affairs Committee noted that poverty can be defined as absolute poverty, relative poverty and social exclusion. Absolute poverty is the lack of basic resources with which to keep body and soul together irrespective of the societal average, relative poverty defines income or resources in relation to the societal average, while social exclusion is concerned with the absence of the material needs to participate fully in accepted daily life. It is a shorthand label for what
can happen when individuals or areas suffer from a combination of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health, and family breakdown. These are important variables for identification and tracking of the poor.

With reinforcing evidence in development literature indicating that increasing income is not a sufficient condition for positive social and economic change and suggesting that the combination of strong community organizations and favorable trading terms produce positive development (Jones, 2002), care must be taken to put the poor people at the center of analysis – not investors and technical resources.

2. CBMS Design

2.1. Key Features of CBMS in Nigeria

The CBMS methodology as applied to Nigeria started with identification (by some experienced micro level poverty analysts who later co-opted other relevant stakeholders to form a research team) of micro-level poverty indicators and variables which are location specific. The academic members of the research team used the identified indicators to build up or construct the CBMS-Nigeria data gathering instruments. The instrument development was quickly followed by the recruitment and training of enumerators and data coders.

So far, the output of the ongoing CBMS-Nigeria study corroborates the studies that led to some existing poverty initiatives in Nigeria. For instance, the World Bank Survey on voices of the poor conducted in 2001 showed that many households in rural Nigeria are living in deplorable conditions. Several years after this survey, CBMS-Nigeria is coming up with same result, meaning that most of the poverty alleviation packages have not trickled down to the targeted beneficiaries. An evaluation of the African Development Bank’s Community Based Poverty Reduction Programme showed that when communities are involved in the selection and implementation of their poverty reduction packages, the success rate is higher (Achike et al., 2009).

Consultation with traditional rulers and leaders of thought: Prior to the implementation of CBMS, courtesy calls were paid to the State Commissioner for Poverty Reduction and Human Development, the Chairman of Nsukka Local government Area, the traditional rulers of the three autonomous communities in Edem and the chairman of Edem town union to orient them on the CBMS-Nigeria initiative, solicit their support and ensure that the communities were effectively sensitized before the commencement of the field work. Similarly, the local research team also made a courtesy visit to the traditional ruler of Mkpamte-Enugu Ezike for facilitation of the pilot survey which preceded the main field work exercise. The traditional ruler of Edem-Ani immediately allocated an office space for CBMS data base.
2.2. Adjustment of CBMS Methodology to Nigeria’s Context

2.2.1. Core Poverty Indicators

The choice of indicators for monitoring is based on national priorities in the Poverty Reduction Strategy Paper of Nigeria (PRSP), the National Economic Empowerment and Development Strategy paper (NEEDS) as well as the Local level Strategy paper (LEEDS). This showcased the frequently expressed dimensions over which deprivation occurs among the communities, and produced a multidimensional poverty profile.

The core CBMS indicators for monitoring poverty used in this study included:

- Demographic composition of household (e.g. household size, number of males/females, age of members, gender of household heads, level of formal educational qualification, number of years spent in formal and vocational schools, etc.);
- Employment type (civil servant, farmer, artisan, housewife, etc.);
- Housing and shelter (type of house, number of persons per room, ownership status);
- Assets/income/expenditure (sources, annual income, percentage of income gap, percentage of annual income spent on food, housing, clothing and medication); and
- Social capital: participation in community activities (plurality of membership to community associations, number of offices held in the 10 years) and access to agricultural and other production inputs (source of inputs, value of subsidy on inputs, if any, and access to improved farm technologies).

Table 1: CBMS Core Indicators, Nigeria, 2009

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Nutrition</td>
<td>Proportion of children aged 0-5 years old who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy-related causes</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 0-5 years old who are malnourished</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households without access to safe water supply</td>
</tr>
<tr>
<td></td>
<td>Proportion of households without access to sanitary toilet facilities</td>
</tr>
<tr>
<td>Education</td>
<td>Proportion of children aged 6-12 years old who been out of school in the last one year preceding interview</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Proportion of children aged 13-20 years old who dropped out of secondary school in the last six months preceding the interview</td>
<td></td>
</tr>
<tr>
<td>Proportion of households with income below the poverty threshold of N29,850 for southeast Nigeria as at 2008 (this figure will be adjusted to account for inflation in 2009)</td>
<td></td>
</tr>
<tr>
<td>Proportion of households with income below the food (subsistence) threshold for the southeast in 2008 – N21,760 (this will be adjusted to account for inflation in 2009)</td>
<td></td>
</tr>
<tr>
<td>Proportion of persons who are unemployed</td>
<td></td>
</tr>
<tr>
<td>Proportion of persons who are underemployed</td>
<td></td>
</tr>
<tr>
<td>Proportion of persons who were victims of crimes</td>
<td></td>
</tr>
<tr>
<td>The number of listed household assets possessed by the household</td>
<td></td>
</tr>
</tbody>
</table>

### 2.3. Data Collection

Data collection was done through a household census using structured and pre-tested CBMS instruments after undergoing a three-day training and two days of pilot testing of the instruments.

To facilitate the conduct of census and household listing, a *transect walk* was done to demarcate the community using observable landmarks like rivers, hills and permanent trees.

CBMS data on households and individuals was collected by trained enumerators. Community level data was collected via focus group discussion with key informants in the survey sites.

#### 2.3.1. Data Collection Instruments

Questionnaire was the major instrument used to collect information from the households. Precisely, three questionnaires were developed, namely:

- Core welfare indicator questionnaire;
- Question on monitoring the impact of global financial crises and identification of coping strategies adopted by households; and
- Community welfare indicator questionnaire.
There were community-specific indicators but they are listed in a separate questionnaire or interview guide and information on them were obtained through focus group discussions.

To be able to achieve the objectives of the study, several socioeconomic indicators were developed and captured in these questionnaires/instruments which were used to canvas information from households. These indicators comprised the conventional CBMS indicators for tracking poverty as well as new indicators designed to monitor the specific effects of GFC on rural households in the study area.

A pilot survey was conducted in a nearby similar community to validate the instrument. The result of the pilot survey led to the revision of some of the items in the instrument for ease of enumeration and analysis. For instance, the question on the distance from the household to a nearby community project was made more specific by asking the distance from the household to a school, hospital, or tarred road. The valuation of farm proceeds was made more precise by asking the current price of such harvests from the farm. The results of the pilot survey were later analyzed by the academic members of the research team and the report was forwarded to funders.

The original proposal design was to have just two instruments and a community score card; but after reviewing and pilot testing, a separate instrument for monitoring the impact of the global financial crises was designed. Also incorporated were items for identifying the coping strategies of the households.

2.3.2. Identification and Training of Local Enumerators and Supervisors

The operationalization of data collection started as stated earlier with the recruitment and training of enumerators. Efforts were made to recruit mainly experienced enumerators and few others who are postgraduate students, local government staff, or literate indigenes of the community. While the literate indigenes of the community and local government staff were recruited as enumerators to serve as guide for future CBMS implementation in other communities at the expiration of the present project, the postgraduate students were recruited for capacity building.

Twenty (20) enumerators were recruited. Most of the enumerators that were tapped are experienced enumerators who are field staff of the National Bureau of Statistics (NBS). The rest are postgraduate students, Nsukka Local Government field staff, and few literate indigenes of the census site. The enumerators were subjected to a three-day training on the CBMS methodology and on the conduct of complete census and enumeration of all the households in the community. A component of the training was a role play which enabled the trainees to participate in a mock enumeration and receive correction immediately.

Similarly, the coders were subjected to three days training and practice to ensure consistency and accuracy of recording. After the training of enumerators and coders, courtesy calls were paid to traditional rulers of the various autonomous communities in the project site and to the chairman and council members of the local government. This was done to facilitate acceptance and buy-in for the
CBMS initiative. Household enumeration and coding went on concurrently under effective supervision and many review meetings to ensure accuracy and consistency of data.

2.3.3. Study Area

Summary table of actual coverage is provided in the table below:

<table>
<thead>
<tr>
<th>Areas/Clans</th>
<th>Number of Households Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akpa</td>
<td>970</td>
</tr>
<tr>
<td>Ozzi</td>
<td>1,050</td>
</tr>
<tr>
<td>Edem-Ani</td>
<td>2,030</td>
</tr>
<tr>
<td>Ibagwa Ani</td>
<td>450</td>
</tr>
<tr>
<td>Okpuje</td>
<td>220</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,720</strong></td>
</tr>
</tbody>
</table>

2.4. Data Processing

Data generated from the CBMS census was processed and analyzed using Excel and Stata software.

As noted earlier, 20 enumerators and 20 coders were recruited and both exercises were carried out concurrently with Focus Group Discussions (FGDs). The coders were mainly postgraduate students from the Departments of Economics and Agricultural Economics, University of Nigeria, Nsukka. The basis for their selection was computer literacy and ability to work and navigate freely on MS Excel. Most of them have had previous experiences in data analysis. In terms of operational modality, once households were interviewed and the completed interview schedule/questionnaires are vetted by supervisors, they were sent for coding and the coded data were collated for analysis. It took about 40 minutes to code a questionnaire and, on the average, 10 to 20 questionnaires were coded in a day by the coders. The coded information is later cross-checked for correctness of entry and consistency of coded information by the supervisors before being sent to the CBMS-Nigeria database.

One of the challenges experienced during data processing/coding was that there were several items to code; hence, many coders spent a long time coding one questionnaire. Over time, however, the coders familiarized themselves with the questionnaire items and were able to code faster. Another challenge encountered was that some of the coders who were indigent students did not own personal computers which were needed to finish coding. Since funding was limited, the local research team approached this problem by assigning some coders to work during the day and assigning the rest to
work at night. Because of the sudden increase in pace among coders, the CBMS-Nigeria team had to recruit and train more enumerators towards the end of the field work.

**Figure 2: Primary School Non-Participation Rate, Edem Community, 2009/10 and 2011/12**

![Figure 2: Primary School Non-Participation Rate, Edem Community, 2009/10 and 2011/12](image)

Source: CBMS-Nigeria 1st & 2nd Census, Edem Community (2009/10; 2011/12)

**Figure 3: Households who withdrew any child from school, Edem Community, 2009/10 and 2011/12**

![Figure 3: Households who withdrew any child from school, Edem Community, 2009/10 and 2011/12](image)

Source: CBMS-Nigeria 1st & 2nd Census, Edem Community (2009/10; 2011/12)

### 2.5. Data Validation

The CBMS–Nigeria team was conscious of the sensitive nature of panel data and, hence, data validation started with precaution taken during enumeration, coding, data entry, and analysis. Two supervisors each regularly checked the data collected and coded by the trained enumerators and coders, respectively. This led to strict review meetings, during which, reconciliations in enumeration,
data entry, and interpretations were made to ensure validity of data. Also coders were attached to enumerators on one-to-one basis; hence one coder consistently coded the data collected by a specified enumerator. This facilitated good interaction and easier clarification of issues during the review meetings. Finally, the names and phone numbers of enumerators and household heads were included in the entries in the data collection instruments. This facilitated call backs and ease of correction after review meetings.

Also, arrangements were put in place to ensure that the same enumerators and coders were used in the second round of panel data collection. From the above narration, all CBMS-Nigeria team members are involved in the data validation exercise. Some of the common errors observed and corrected included, measurements of height and weight of children less than five years, valuation of income and putting of correct household identification numbers among other things.

During the presentation of the CBMS-Nigeria findings report to the chairman, councillors, traditional rulers, town union leaders, and other stakeholders, it was agreed that the CBMS methodology will be replicated in the other communities in the local government. This was based on the fact that the town councilors and traditional and town union rulers corroborated the CBMS-Nigeria findings in the project community/site. A quarterly meeting with the CBMS team was also arranged for regular updates.

2.6. Database Management

The CBMS database was established in two places, namely, Igwe’s Palace in Edem Ani and the Department of Agricultural Economics, University of Nigeria Nsukka. Access to the CBMS database is subject to the permission of the CBMS team leader. The Chairman of Nsukka LGA has checked the database and established a working arrangement with the team whereby he will have free access at short notice especially when state officials want to be acquainted with CBMS-Nigeria activities. The former state commissioner for poverty alleviation had also checked the database and discussed possible collaboration just before his portfolio was reassigned.

During the joint meeting of the CBMS-Nigeria team with the chairman and traditional rulers, it was agreed that more representatives of the community should join the CBMS team in order to facilitate a smoother understanding of the database management process once the project has ended. This is to ensure continuity. At the time, only the Igwe’s secretary was involved in the management of the database management.

3. Uses of Data

The data generated from CBMS was used as a planning guide by Nsukka Local Government to give dividends of democracy to the Edem Community. CBMS data from Edem was also used to monitor the impact of Global Financial Crises. CBMS data was used, for instance, to identify and locate
households who, as a result of the global financial crisis, withdrew their children from school. Data was also used to determine the extent and differences in receipt of government assistance across the households in the CBMS sites.

Three major reports – Community Based poverty Monitoring System: A Community Participatory Approach, Monitoring the Impact of Global Financial Crises, and Implementation of CBMS Methodology in Nigeria formed the major outputs of the CBMS-Nigeria Project.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

For much of the post-independence period, Botswana has recorded impressive growth rates, real per capita income growth of over 7 percent a year. However, the country is facing a number of development challenges that include unemployment, poverty and income inequality. The country has over the years also developed a very sound policy intervention to deal with the key challenges. On the other hand, there are challenges in terms of monitoring and evaluation of impact of the intervention programmes. The country also has challenges with micro data which then limits it in terms of monitoring and evaluation of policies and programmes. The Millennium Development Goals (MDGs) and Vision 2016 Goals were being monitored using aggregated data from the Government Statistics Agency, Central Statistics Botswana (CSO) (now Statistics Botswana), whose data is highly aggregated and also infrequent in production.

In this regard, the implementation of a community based approach, specifically the community based monitoring system (CBMS) is explored to enable the monitoring and reporting of Sustainable Development Goals (SDGs) at the community level and as a tool for the production of disaggregated data for policy intervention on key development challenges. The adoption of CBMS is intended to facilitate active community participation in developing interventions to problems that directly affect them. The target research area is a key satellite village of the Capital City (Gaborone).

CBMS is an organized tool that is used to collect and generate disaggregated information at the local community level for the use of community leadership, local government units, national government agencies, non-governmental organizations, and civil society for planning, as well as programme implementation and monitoring. Consequently, the CBMS will help to provide information that can be used to (i) identify which of the population in Gabane are unemployed and poor, (ii) where, in Gabane, those identified unemployed and poor reside, (iii) what factors influence the possibility of a person in the locality becoming unemployed and poor, and whether government programmes help to reduce unemployment and poverty.

The information generated by CBMS tool was made available to the leadership of Gabane community and local authorities. Such information should help the authorities responsible for administrating government intervention programmes to better target the appropriate recipients in order to achieve intended outcomes. To the extent that the resultant data can achieve this, then the implementation of the CBMS methodology can yield community-based practical solutions to solving the poverty, unemployment and other development goals as articulated in the SDG’s in Gabane village. More generally, the CBMS method is useful in guiding the formulation of more appropriate policies and government programmes to reach the less privileged members of the society.

The data collected from the community using the CBMS was used to produce an SDG report for
Gabane as well as a theme topic paper. The results were shared with the Gabane and policy makers for policy intervention purposes for the general improvement of welfare of Botswana. Lessons from the study will also be used for other areas similar to Gabane.

1.2. Local Government Structure

The local government serves as an "instrument of decentralization and public participation for local level governance and service delivery" (Madala & Phirinyane, 2016). Although Botswana has no constitutional provisions for local government, the Ministry of Local Government and Rural Development (MLRD) is mandated to formulate policies and monitor the performance of local authorities. Aside from the Local Government Act 2012, other legislative acts on good governance and development of localities include the Public Service Act 2008, the Town and Regional Planning Act 2013, and the Local Authority Procurement and Assets Disposal Act 2008.

Local government is divided into 16 councils – ten rural districts and six urban towns/cities. Rural areas are headed by a council chairperson while urban areas are headed by a mayor. Councils are further divided into wards and each ward is represented by a councilor at the sub-district and district levels. Meanwhile, villages and wards (cluster of villages) were established to support rural development initiatives at the community level. Village traditional leaders (Kgosi/Kgosana) are responsible for facilitating community participation in program and policy consultations at the local level (Commonwealth Local Government Forum [CLGF], 2018).

The village leadership (kgosi and/or Kgosa), Council leadership that include councillors for the area, council secretary and staff of the sub-council as well as the Ministry of Local Government and Rural Development are in a position to ensure participation of communities in government programmes and report if there are issues of targeting of the various government programmes.

1.3. Review of Existing Monitoring Systems

Botswana has introduced a myriad of policies and programmes aimed at trying to address the social problems that have persistently accompanied her sustained high economic growth (high poverty levels, high rates of unemployment, high inequality, etc.). For example, the country has had a National Strategy for Poverty Reduction of 2003, which has now been elevated to a strategy to eliminate abject poverty (i.e. abject poverty eradication strategy, in order to address poverty). Similarly, the Government has provided health facilities to enable easy access to people, within 15 km distance, etc.

Despite these efforts, the success of government policies and/or programmes is inhibited by, inter alia, lack of a good monitoring and information system to provide evidential basis for
policy/programme development, implementation, monitoring and reform (United Nations Development Programme [UNDP], 2010). No CBMS based study has ever been done for Botswana, making the current study the first of its kind for the country. Furthermore, this is the first ever tablet-based local data collection system developed or pilot tested in Botswana. The current problem of lack of effective monitoring of MDGs and now SDGs partly reflect the fact that currently the tracking of progress on achievement of government policies and programmes is based on aggregated data that is collected by the national statistics department (Statistics Botswana), and not micro data. Specifically, in the case of monitoring the Millennium Development Goal 1 (MDG 1), which has to do with eradicating extreme poverty and hunger, UNDP (2010) states that major weaknesses in monitoring progress revolves around the disaggregation of data, frequency of data collection as well as data analysis. It is arguable that these data challenges contribute substantially towards the lack of use of poverty related information in policy processes; which, in turn, results in deficiencies in the monitoring and evaluation of poverty and related policies and programmes. The same is true in terms of the other MDGs as reported in the 2004 and 2010 UNDP Reports. The country’s previous national vision (Vision 2016) was similarly not well monitored due to lack of micro data.

On account of these challenges in Botswana’s monitoring systems, UNDP (2010) recommended, for Botswana to achieve more progress in its commitment to eradication of poverty, there is need for a more robust Poverty Monitoring and Information System (PMIS). Such robust PMIS should be characterized by higher levels of disaggregation, good estimation processes, quality analysis of the collected data, good archiving capabilities and efficient dissemination.

The above captioned problems point to existence of serious data gaps that prevent appropriate policy formulation and/or programme implementation to effectively deal with the country’s social challenges. This means that currently it is difficult for policymakers to monitor progress on poverty reduction, in terms of SDG indicators.

Further to the problems, it is noted that the use of aggregated data means that there is lack of disaggregated empirical evidence on the characteristics and determinants of the unemployment and poor people in Botswana. In this regard, the development and implementation of the Community-Based Monitoring System (CBMS) is needed in Botswana. The CBMS approach is appropriate since it can effectively pinpoint which people are involuntarily unemployed and poor and what their characteristics are, as well as where those poor are located. It should be noted that the key attributes of the more robust PMIS recommended by UNDP (2010) are the characteristic features of the CBMS methodology. Such information should help to design and implement policies that will effectively resolve unemployment and poverty problems.
2. Key Features of CBMS in Botswana

No CBMS has been done in Botswana despite the fact that there are weaknesses in data for evaluating programmes and policies. The proposal to adopt CBMS in Botswana is influenced by:

a) **Lack of necessary data** for: (i) diagnosing the extent of youth unemployment in the selected locality, (ii) determining the causes of youth unemployment in the selected locality, (iii) formulating appropriate policies and programmes to address youth unemployment in the selected locality, and (iv) assessing the impact of existing policies and programmes to complement the data generated by Statistics Botswana. A particular contributing factor for its proposed implementation is the lack of gender disaggregated data that allows researchers to carry out comprehensive studies of this problem.

b) **Need for community engagement in finding solutions to problems that directly affect them.** The CBMS research methodology allows for active participation of the community in analyzing the problem being examined, and in drawing policies and programmes to address a specific development problem. The implementation of the CBMS process also creates a sense of ownership for all members of the community.

c) **Need to generate data requirements to produce indicators at the local level for poverty and SDG monitoring.**

d) **Need for additional data relating to labour transitions at the local level** to enable the conduct of study on the determinants of unemployment and labour market transitions particularly among the youth in the country.

A Steering Committee was set up comprised of community members and leaders, local government officials, officials of the Ministry of Youth, Sports and Culture, as well as non-governmental (with one on women’s NGO such as Emang Basadi) and civil society organizations at the national and local levels. The CBMS research team of University of Botswana worked hand in hand with this Committee in carrying out the design and pilot test of CBMS, in the context of Botswana, in the study sites with the goal to inform the design of the local development plan, particularly for addressing poverty and SDGs and key issues on youth unemployment, based on the CBMS generated data taking the case of Gabane.
2.1. Indicators

2.1.1. Core Poverty Indicators

Twelve (12) indicators of poverty, as shown in Table 1, were identified covering status in terms of income, hunger, employment, health and nutrition, basic education, social assistance, access to water and sanitation, and access to electricity.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Indicator</th>
<th>Definition (Official)</th>
<th>Definition (Operational)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>Proportion of male and female headed households with income below the poverty datum line</td>
<td>Poverty is defined as those living below BWP880.00 per month.</td>
<td>Total number of male/female headed households with income below the poverty datum line over total number of male/female headed households</td>
</tr>
<tr>
<td>Hunger</td>
<td>Proportion of households with inadequate access to food</td>
<td>FAO defines hunger as a continued inability to obtain enough food/an amount of food energy sufficient to conduct a healthy and active life.</td>
<td>Total number of households with inadequate food over total number of households</td>
</tr>
<tr>
<td>Employment</td>
<td>Proportion of males and females aged 15-64 unemployed</td>
<td>The unemployed comprise all persons aged 15-64 who were: a) without work during the last 4 weeks, i.e. not in paid employment or self-employment; b) currently available for work, i.e. available for paid employment or self-employment during the last 4 weeks; and c) seeking work, i.e. had taken specific steps in the last 4 weeks to seek paid employment or self-employment.</td>
<td>Total number of unemployed over the total labour force (employed and unemployed)</td>
</tr>
</tbody>
</table>

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1 In terms of the Rules of the Botswana Public Officers Pension Fund, early retirement begins at age 45 while normal retirement is age 60, however, there are other Employing Authorities, who are also participants in the BPOPF, with a different early retirement age and normal retirement age (Botswana Public Officers Fund 2019).
<table>
<thead>
<tr>
<th>Health &amp; Nutrition</th>
<th>Proportion of children between birth and 1 year old who died</th>
<th>Infant mortality rate - Probability of dying between birth and exactly one year of age expressed per 1,000 live births (UNICEF)</th>
<th>Total number of Children 0-1 year who have died over total number of children 0-1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion of children under 5 years old who died</td>
<td>Under-five mortality rate - Probability of dying between birth and exactly five years of age expressed per 1,000 live births (UNICEF)</td>
<td>Total number of Children 0-5 years who have died over total number of children 0-5 years</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 0-5 years old who are moderately or severely underweight</td>
<td>An underweight child has weight for age $&lt; -2$ standard deviations (SD) of the WHO Child Growth Standards median. Thus, it is measured using Low weight for age.</td>
<td>Total number of children under 5 years with low weight for age over total children under 5 years</td>
</tr>
<tr>
<td>Basic Education</td>
<td>Percentage of children 6-12 years old who are not attending primary school</td>
<td>An action designed to meet &quot;basic learning needs&quot;. Basic Education in Botswana consists of a total of 10 years which include, 7 years of primary school and 3 years of junior secondary school. The official school starting age is 6 years</td>
<td>Total number of children 6-12 years old who are not attending primary school over total number of children 6-12 years old</td>
</tr>
<tr>
<td></td>
<td>Percentage of children 13-15 years old who are not attending secondary school</td>
<td></td>
<td>Total number of children 13-15 years old who are not attending primary school over total number of children 13-15 years old.</td>
</tr>
<tr>
<td>Social Assistance</td>
<td>Proportion of poor Households that do not receive Social Assistance</td>
<td>Social Assistance is the provision of assistance in cash or kind to persons who lack the means to support themselves and their dependents. Botswana offers several Social assistance programmes for targeted groups. Criteria for eligibility depend on the programme.</td>
<td>Number of households not accessing social assistance programmes over total number of household.</td>
</tr>
</tbody>
</table>
### 2.2. Data Collection

#### 2.2.1. Data Collection Instruments

The data is collected through the conduct of a household census using structured questionnaires that were developed in the context of Botswana. The questionnaires are transformed in tablet-based form, using the CBMS Accelerated Poverty Profiling (APP) tool, for ease of data collection and entry. Data from field was submitted and managed through the CBMS Portal.

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**Notes:** BWP=Botswana pula; 1BWP=US$10
Questionnaires developed to generate information requirements for poverty and SDG profiling composed of a household profile questionnaire and community profile questionnaire.

The rider survey questionnaire to gather additional data for the study on youth unemployment was embedded into the household questionnaire and hence was administered at the same time.

2.2.2. Identification and Training of Enumerators

The local research team from University of Botswana consulted the Gabane community in the recruitment of Gabane youth as enumerators for the study. An advertisement was posted for a period of a week at the Gabane Main Kgotal outlining the requirements of the job.

To further empower the community and also maximize on knowledge gains coming from tapping members of the community that know the area well, twenty (20) enumerators from Gabane were engaged and trained. The local enumerators were trained for a period of one (1) week with the main objective of introducing the enumerators to the CBMS initiative and the CBMS methodology, and to train them on the use of the questionnaires and the tablet-based system for data collection. The training also included the conduct of field operations, such as how to introduce the project and self to the respondents, to make follow up visits in households where no one was home at the initial visit. The training also involved the familiarization with the Setswana version of the questionnaire and the importance of giving respondents the option of choosing a language they are comfortable with (between native Setswana and official language, English).

The local authorities (dikgosana) and other local stakeholders such as the Village Development Committee (VDC) played a key role of being spokespersons at their respective Kgotalas. They mobilized the community to welcome the enumerators in their homes and encouraged them to provide the enumerators with the required information. They also ensured the safety of the enumerators.

2.2.3. Census Site and Field Operations

The implementation of CBMS was pilot tested in Gabane community which is divided into four main wards (kgotala). Gabane was chosen because of its close proximity to Gaborone (where the research team is based).

The overall population recorded in Gabane is 6842. Gabane is divided into four (4) council wards and each ward recorded the following population: Gabane South East (2,165); Gabane South West (2,056); Gabane North West (1,576) and Gabane North East (1,045).
Based on the 2011 Botswana census by Statistics Botswana, the total number of households covered is less than the anticipated 6842 mainly due to the fact that a household can comprise more than one (1) person (Statistics Botswana, 2014). This also shows that there have been household changes since the 2011 census especially with relocation of students from multi residential units whom at the time would comprise a single household. It is for this reason that the total number of households interviewed is 2693. The census also includes villages classified as those associated with Gabane which are not in the central part of the village, which were excluded due to logistic reasons. The locality with the highest number of households is Gabane North West with a total of 717 households (26.6% of the total).

2.3. Data Processing

For purposes of the pilot study, data collected from the conduct of CBMS census was processed by the CBMS research team of University of Botswana using STATA software. Among the data generated include housing and household characteristics, demography, education and literacy, employment, labour market transitions, household members who died, food insecurity, sources of income, access to programs, water and sanitation, and electricity among others). Poverty maps highlighting CBMS key findings on needs identified in the community were also processed using the CBMS-QGIS software. For instance, Figure 1 shows a sample poverty map generated that shows CBMS data on access to safe water in the study sites. The red shaded dots point out to households without access to safe water in Gabane Village.

Figure 1: Proportion of households with access to safe water

Source of basic data: CBMS Census, Gabane Village, 2018
Figure 2 shows a sample poverty map of the CBMS census results in the study site on access to sanitation. Data shows that while most of the households have access to safe sanitation facilities, the poverty map indicates that about 1 percent of the households have no access to said facilities.

**Figure 2: Proportion of households with access to safe sanitation**

Source of basic data: CBMS Census, Gabane Village, 2018

### 2.4. Data Validation

A validation workshop was organized and conducted where the results were presented to key stakeholders. Among the participants of the workshop are representatives from the Population and development coordination in the Ministry of Finance and Economic Development, United Nations Development Programme, National Strategy office, Ministry of Local Government and rural development, and the Gabane community. The workshop was intended to get answers to some of the CBMS census results that could not be explained or were a bit counterintuitive. For instance, the Gabane community was able to assist us to explain why poverty tends to be higher in some wards compared to others in Gabane. They also explained why few people enrol in government programmes in Gabane. The results had to be interpreted to Setswana (Botswana’s native (official) language) so the Project Team was able to highlight the implications of the results and what the community’s role going forth.
2.5. Database Management

The CBMS database of the pilot sites is managed by the CBMS Botswana Team of the University of Botswana. Authorized members of the Team had full access to the data and were responsible for uploading the data in the CBMS Portal. Protocols were established particularly in providing data access to ensure data privacy in the management of the CBMS data generated from the pilot sites.

3. Uses of CBMS

CBMS can generate data for SDG monitoring at the local level. In particular, 21 indicators can be monitored across 8 SDGs (Table 2). Data from the pilot sites has been used to produce a local SDG report for Gabane which highlighted the status of the community in terms of the different areas of the SDGs.

Table 2: CBMS-SDG Indicators, Botswana, 2018

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>5</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population covered by social protection floors/systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living in households with access to basic services</td>
</tr>
<tr>
<td>Goal 2 – Zero Hunger</td>
<td>2</td>
<td>Proportion of population who experienced hunger</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of children under 5 years of old who are malnourished</td>
</tr>
<tr>
<td>Goal 3 – Good Health</td>
<td>4</td>
<td>Number of pregnancy-related deaths</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of HIV and TB-related deaths</td>
</tr>
<tr>
<td>Goal 4 – Quality Education</td>
<td>2</td>
<td>Number of deaths due to non-communicable diseases</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of deaths due to motor vehicle accidents</td>
</tr>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>2</td>
<td>Proportion of children attending pre-school</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of children attending primary school (6-12 years old) and secondary school (13-15 years old)</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>2</td>
<td>Proportion of households with access to safe water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of households with access to safe sanitation</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>3</td>
<td>Unemployment rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of youth (aged 15-24 years) not in education, employment or training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion and number of children aged 5-17 years engaged in child labor</td>
</tr>
<tr>
<td>Goal 11 – Sustainable Cities and Communities</td>
<td>1</td>
<td>Proportion of households living in slums, informal settlements or inadequate housing</td>
</tr>
</tbody>
</table>

The CBMS results have highlighted the different poverty outcomes for different areas of the Gabane village. It also revealed that people who are supposed to be provided with social safety nets are not enrolled in the programs, especially those living with disability. The CBMS results point out that there is need for effective monitoring and evaluation of social safety net programmes on a continuous basis to make sure that intended objectives are met.

Moreover, micro level data generated from CBMS has also been used to analyze thematic issues on youth unemployment. In particular, CBMS generated the required data that enabled the analysis of how factors (both individual characteristics and other economic variables), particularly, age, sex, education and access to programs influence the movements of Gabane youth across the labour
market positions of employment, unemployment, and out-of-the-labour market.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

The community-based monitoring system was initially pilot tested in Ethiopia in 2015 during which the CBMS methodology was developed and tested in selected areas in Addis Ababa and Dire Dawa City Administrations, to generate poverty indicators that can be monitored and analyzed at the local level and would involve local authorities and communities in poverty monitoring. From the said pilot CBMS project initiative by the Haramaya University, undertaken under a research grant from Partnership for Economic Policy with support from IDRC and UK DFID, it was shown that implementation of the CBMS methodology, in the context of Ethiopia, can generate the needed data disaggregation to be able to monitor key poverty indicators such as access to sanitation and water, health and nutrition, education, housing facilities, social engagement, and income and employment among others particularly at the wereda and kebele levels. Prior to the development and pilot test of the CBMS in Ethiopia, this information was not available at local level and there were no known plans designed by local administrators to gather these data (Mehari et al., 2016). The CBMS initiative facilitated the implementation of the first tablet-system for data collection in the country.

The pilot test of CBMS in 2015 in selected areas in the country has shown how the implementation of CBMS methodology can address the absence of local monitoring system particularly to generate more detailed information for poverty analysis and help examine gender disparities in youth unemployment and entrepreneurship. It emphasized how the lack of a local monitoring system makes it difficult for regions, sub-cities, weredas, and kebeles to precisely detect specific needs and problems of sub-groups of population, such as those of female and male youth entrepreneurs that need to be adequately addressed in their areas. The study recommended that implementing CBMS would provide the regions, sub-cities, weredas, and kebeles an opportunity to identify problems in relation to poverty at community, household and individual level. The CBMS would also help in the evaluation of policies being implemented at the local level as it is a tool that can generate the needed data for analyzing policy issues such as determinants of financial exclusion among sub-population groups (i.e. youth, males and females, micro and small business entrepreneurs) that would help develop and implement more informed-policies at national and local level. Establishing the CBMS, according to the study, would also grant easy access to local authorities to information on poverty and priority areas, and would also be useful in investigating problems regarding reasons for other specific policy concerns such as youth unemployment and entrepreneurship.

The study by Mehari et al. (2016) further pointed out the limitations in consistency and timeliness of available data in Ethiopia, generated by Central Statistical Agency, particularly for analyzing policy issues relating to financial inclusion, poverty and youth unemployment, and gender disparities and micro and small business entrepreneurship at the regional, sub city and kebele
levels. The main source of data in the country is the Ethiopian Central Statistical Agency (CSA). Local administrators and the communities are not directly involved in monitoring poverty in their areas. The data provided by the CSA is described by the study as not disaggregated enough to the extent needed in order to have a better understanding of the situation of the sub-groups of population. In particular, it is not timely and consistent to the level needed for local planning.

Apart from generating local level data for regularly monitoring a core set of poverty indicators, the CBMS implementation in Ethiopia is intended to help national and local governments in formulating more effective poverty programs and measure progress aligned with the Sustainable Development Goals (SDGs). Thus, the expansion of CBMS initiative in 2017-2019 has identified and generated selected SDG indicators such as those relating to poverty, health, quality education, water and sanitation, energy and inequality among others that can be monitored at the local level.

1.2. Local Government Structure

Ethiopia is a federal state subdivided into ethno-linguistically based regional states and chartered cities. This system of administrative regions replaced the provinces of Ethiopian in 1992 under the Transitional Government of Ethiopia and was formalized in 1995 when the current Constitution of Ethiopia came into force.

The upper administrative structure of Ethiopia is the federal government which is led by the Ethiopian People Revolutionary Democratic Front (EPRDF) and now it is dismantled and restructured and renamed as Prosperity Party (PP) since 2018. The second hierarchy of administrative structure is region and there are currently nine regional states and two chartered cities, the latter being the country’s capital Addis Ababa, and Dire Dawa, which was chartered in 2004. Each region is made up of zones and there are about 68 zones, across the nation, which are distributed in 9 ethnic base regions. The structure is different for the two character-based cities of the country (Addis Ababa and Dire Dawa). Addis Ababa is made up of 11 sub-cities known as “kifile ketema” and there are four “clusters” in Dire Dawa city. The next level of administration after the zones and sub-cities are wards “weredas” and there are more than 611 weredas in the country. Particularly, for Addis Ababa city, the lowest level is weredas. The lowest level of the administrative structure for regions is kebeles and there are more than 2,600 weredas around the country. The CBMS is being proposed to be implemented at the lowest administrative hierarchy of the country which are Wereda at the capital city Addis Ababa and two Kebeles in Shirka Wereda.
FIGURE 1: Administrative structure of Ethiopia

The Federal Constitution of 1995 established member states of the Federal Democratic Republic of Ethiopia. These member states are the regional states of Tigray, Afar, Amhara, Oromia, Somali, Benishangul Gumuz, Southern Nations, Nationalities and Peoples, Gambela and Harari. The two city administrations Addis Ababa and Dire-Dawa are considered the equivalent of regions. The constitution determines the powers, functions and responsibilities to regions. The Regional governments have also given all powers and functions which are not provided to the federal government alone or joint to the federal and state governments. Zonal administrations considered as intermediate tiers of government between region and Wereda. They do not have legally recognized tier of government with constitutionally mandated powers and structure as self-governing entity. Zones have coordinating and supervisory authorities over Wereda administrations on behalf of the region. This implies that they are considered as de-concentrated administrative units of the regional government.

The Wereda administrations have the power to prepare and decide on economic development and social services, plans and implement policies and directives issued by the regional state and zone organs. On the other hand, the authority of the Wereda to carry out their functions has not been further enhanced as required. Most of the powers enshrined in the regional constitution to Wereda are good only in the constitution document in the shelf except that the council members meet for approving the annual plans and budget. Some of the powers are still centralized at regional and zonal levels. Wereda enjoyed little fiscal or administrative autonomy to respond to the local needs of their constituencies. Moreover, weredas and kebeles have limited resources and autonomy in designing policies, programs and carry out monitoring activities in their respective locality.
With regards to the SDGs, the National Planning Commission (NPC) of the FDRE is the government agency responsible for coordinating and preparing the national development plan and monitoring and reviewing its implementation progress/performance. These activities are not decentralized at Wereda and Kebele levels. The decision of local government units is hugely reliant on the data available at the national and rarely at regional level and they are not making an appropriate prioritization to allocate resources and implement programs in their area. Thus, the implementation of a CBMS is envisioned to fill this data gap and empower the local administrative units since it would provide the necessary disaggregated data at the individual and household level for decision making. Specifically, the local administrative units can then use this information for implementing programs and in resource allocation given the priority needs and areas that would be drawn from the CBMS data.

1.3. Review of Existing Monitoring Systems

In Ethiopia all decisions are made haphazardly without the presence of data at local level. Specifically, sustainable development goals are neither the issue nor area of engagement at grass root level. Hence collecting disaggregated data at the community level will help decision makers track in which development area does the local government has a big problem and act accordingly particularly in the context of meeting the SDGs.

Meanwhile, there is also inconsistent and untimely data that can help in analyzing other policy issues such as financial inclusion, poverty and youth unemployment, and gender disparities and micro and small business entrepreneurship at the regional, sub city and Kebele level. The only institution gathering data on a regular basis is the Ethiopian Central Statistical Agency (CSA). This data provided by the CSA, on the other hand, is not disaggregated enough to the extent needed to better understand the situation of the sub-groups of population. In particular, it is not timely and consistent to the level needed for local planning.

2. Key Features of CBMS

The CBMS methodology, described in detail by Reyes and Due (2009), is an organized way of collecting, processing and validating data at local level that can be used by local government, national government agencies, NGOs, and civil society for planning, budgeting and implementing local development programs, as well as for monitoring and evaluating their performance. In the context of Ethiopia, The implementation of CBMS could support the efforts by the local administrative officials to reduce the level of poverty and monitor inclusive development among all the population within the nation as it provides the needed disaggregated information to local authorities that can help design and implement an appropriate policies and programs in the community. The implementation of CBMS is intended to enable communities and local authorities to gather and access verifiable information about actual living conditions at their level and use this
information for planning and policy making. Moreover, CBMS recognizes that planning public program activities should involve the poor at different localities and whose well-being is will be affected by the programs to be implemented by the local national, regional and local officials.

The CBMS-Ethiopia project in 2015 focused on the design and pilot test of a core poverty indicators and pilot test the collection of local level data for poverty analysis through the implementation of a CBMS. Under the current CBMS project, additional indicators were generated to monitor the sustainable development goals and corresponding disaggregation. CBMS data from the pilot sites were generated to capture 13 of the SDG goals and 58 indicators. Additional SDG related data which were not captured in the earlier CBMS design in 2015 was also collected. Data was used to generate a multidimensional poverty index for the study sites in Addis Ababa and Shirka Wereda.

From the previous CBMS project, experiences have been gained and used to improve the second project. For instance, the current project has included “employment” as a core indicator replacing “production” due to the growth of unemployment and the sensitivity of employment in the current economic environment. The previous project study also focused on youth entrepreneurship to track the problem on unemployment. The current project also generated additional data to examine the issue of financial inclusion and youth entrepreneurship.

2.1. Adjustment of CBMS Methodology to Ethiopia’s Context

One of the objectives for the development of CBMS in Ethiopia is to generate data for monitoring and understanding the causes of poverty at the local level. The implementation of CBMS in the project sites has generated demographic and socioeconomic data at individual level, household level and community levels. In particular, the conduct of CBMS data collection through a household census has generated latest data for the project sites on population demography, and on different dimensions of poverty including both income and non-income measures. CBMS has generated a set of core poverty indicators that can be monitored at the individual and household level. CBMS data was also used to generate and CBMS-SDG indicators at the local level. In addition, the CBMS has also generated data requirements for the conduct of a study on determinants of financial inclusion among the youth.

The identification of the core indicators of poverty in Ethiopia was based on priorities given by the national government in the process of poverty reduction. Additionally, it has also considered the contextual aspect of the country in poverty reduction. For instance, social capital is considered as one of major contributors of poverty reduction in Ethiopia and it is included as one poverty indicator in this project. The remaining indicators are widely used by the national government in monitoring level of poverty in the country.
2.1.1. Core Poverty Indicators

The CBMS implemented in Ethiopia covers 7 dimensions of poverty including health and nutrition, housing, sanitation and water supply, education, employment, income, and social engagement. CBMS can monitor 12 indicators across the different dimensions of poverty.

### Table 1: CBMS Core Indicators, Ethiopia, 2018

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
<th>Official/Operational Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health and Nutrition</strong></td>
<td>Proportion of children under five years old who died in the last 12 months</td>
<td>Under-five mortality rate is the probability of dying between birth and exactly five years of age expressed per 1,000 live births.¹</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy related causes in the last 12 months</td>
<td>Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.²</td>
</tr>
<tr>
<td></td>
<td>Proportion of children age less than 5 years old who are malnourished</td>
<td>Malnutrition refers to a wide range of clinical disorders resulting from unbalanced intake of energy, protein, or other nutrition.³</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td>Proportion of households living in substandard houses</td>
<td>Improvised housing unit is an independent makeshift shelter or structure built of waste materials and without a predetermined plan for habitation but being used as a living quarter.³</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who do not have their own private house</td>
<td>A permanent housing unit is a structure that may be expected to maintain its stability for ten years or more.³</td>
</tr>
<tr>
<td><strong>Sanitation and water supply</strong></td>
<td>Proportion of households who do not have access to own toilet facility</td>
<td>Toilet is an installation for the disposal of human excretes and a flush toilet as an installation connected with piped water arranged for humans to discharge their wastes and from which the wastes are flushed by water.³</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who have no access to clean water facility</td>
<td>Safe water is water that does not contain biological and chemical agents directly detrimental to health. It includes treated surface water and untreated but uncontaminated water from protected springs, bore-holes, sanitary wells etc.</td>
</tr>
</tbody>
</table>

¹ [https://www.unicef.org/infobycountry/stats_popup1.html](https://www.unicef.org/infobycountry/stats_popup1.html)
³ Drawn from Central Statistical Agency of Ethiopia (2001)
## 2.2. Data Collection

As part of the CBMS implementation it has intended to generate necessary data for the conduct of a research study that analyzes the relationship between financial participation (financial exclusion) and other economic indicators and in turn inform local and national policymakers on the impacts of financial exclusion. Knowing that the area does not have any data or existing CBMS regarding access to finance, reasons for financial exclusions and level of male and female youth entrepreneurship, the pilot study has totally relied on the CBMS data bank that the project team has
established through the CBMS implementation. Though a rider questionnaire was developed to generate additional data for assessing the determinants of financial inclusion (or exclusion?) for youth entrepreneurship, the study also made use of some of the household and individual level data collected through the core CBMS household and community profile questionnaires. For instance, data concerning the level of unemployment, number of financial service providers, ATMs, POS terminals, the relationship between household consumption and income, average age, and household size are processed from data collected through household and community profile questionnaire. Additionally, some data for some level of disaggregation i.e. by age, sex and sub-location about the relevant population for the study are obtained through these questionnaires.

2.2.1. Data Collection Instruments

CBMS data was collected in the study sites using a set of questionnaires composed of a household profile questionnaire, and a community profile questionnaire. For purposes of the thematic research study on youth unemployment and entrepreneurship in 2015, and on financial inclusion and entrepreneurship in 2017, a rider questionnaire to collected additional information was also administered. The questionnaires were deployed and administered in the study sites through a tablet system of data collection. This was facilitated by the CBMS Accelerated Poverty Profiling (APP) tools. Manuals for local enumerators have also been developed for use in the conduct of field data collection.

The household profile questionnaire, composed of 108 questions, collects detailed information on the characteristics of households and its members. It gathers data on demography, education, health, access to water and sanitation, housing, employment, income and sources, expenditures, and social engagement. It also gathers data on asset ownership, access to infrastructures for lighting (power), sources of fuel (for cooking), access to internet and transportation, and access to savings facility. Individual level data can be disaggregated by age, sex, marital and disability status among other characteristics. Data is collected through a household census.

The community profile questionnaire, on the other hand, collects information on available public facilities and infrastructures (i.e. education, water and sanitation, financial services and facilities including number of formal financial institution branches, number of ATMs and number of POS terminals), peace and order, and about the environment i.e. presence of logging and charcoal burning activities.

The rider questionnaire, on the other hand, gathered additional details about target youth respondents particularly relating to access and use of financial service facilities, and factors for engagement in entrepreneurship or business activities.

The questionnaires were transformed in tablet form using the CBMS Accelerated Poverty Profiling (APP) tool- CBMS SCAN software (tablet form of the CBMS questionnaire). Data gathered during the census was transmitted to the CBMS Portal where data is stored, monitored and accessed.
The CBMS Accelerated Poverty Profiling (APP) tool was very helpful in collecting the data using tablets. It automatically skips questions which are not applicable to certain households and some of its members. The tablet system for data collection also minimized paper works entailed by paper-based system particularly saving time in terms of local training, data collection, editing and processing. The CBMS APP also helped in taking GPS from the actual location of interviewed households.

### 2.2.2. Identification and Training of Enumerators

From the experience of implementing CBMS in the study sites, enumerators should be selected from and within the community since they are familiar with the census area. Enumerators also need to be familiar with the use of smart phones.

Local enumerators were selected based on their experience in data collection, and skills particularly in Afan Oromo language. High school teachers and local health center workers in the study area (especially in Shirka Wereda) were initially considered to be data enumerators considering their capability to undertake the data collection activities and their familiarity in the community. But due to their regular duties and time required for the data collection it was not possible to tap them. Hence, recruitment of data enumerators was made through vacancy announcement. Twenty-four enumerators were selected. Said enumerators have rich experience in data collection and were living in the project sites, Census sites, Addis Ketema Sub-city, and Shirka Wereda were assigned with 12 enumerators each. Delineation of assignments of census area among enumerators was facilitated by the local administrative units.

Prior to field data collection, enumerators were trained by the local CBMS research team. During the training, the enumerators were oriented on the overall objectives of the CBMS and on the guidelines for field census operation and data collection. It included a three-day detailed training to supervisors and data enumerators on the process and tools for data collection using the CBMS Accelerated Poverty Profiling (APP) tools. Manuals for data collection developed by the local CBMS research team, which included a description of each question and concepts in the questionnaires, the possible responses and appropriate codes, and other details of field operations, were used as reference for the training.

### 2.2.3. CBMS Census Area

Data collection was conducted in two cycles going from one site to the other. The census was done based on recognition that the household size and distance between sites from where the data is supposed to be collected.

According to the data obtained from this CBMS study, the total population size of Addis Ketema sub-city Wereda 10 is around 6,307 with 1813 households and the total population in the second
site (Shirka Wereda) is 17,304 with 4,633 households. In the effort of deciding the size of enumerators, the size of population (Addis Ketema sub-city and Shirka Wereda) from where the census data were collected is considered. Hence, taking the enumerators number at Addis Ketema sub-city 12, all enumerators were assigned to handle gathering data from 1,813 households (comprising around 3.5 family sizes per household) within two months period of data collection.

Addis-Ketema sub-city is among the 10 sub-cities found at the city. One project site (Wereda 10) is selected from this sub-city. Based on this CBMS-Ethiopia study conducted in 2018 in Addis Ketema sub-city Wereda 10, the total number of households in the wereda is 1,813 and the total population is around 6,307 resulting in average number of 3.5 members per household.

The other area in which the study is conducted in Arsi zone Shirka Wereda. Among the 18 zones in Oromia region, Arsi has a surface area of around 23,881km2 and mixed farming practice is the characteristics of the zone. The difference in its weather condition allows the zone to practice various agro-ecological zones (mainly 5 major zones) which are moderately cold which accounts about 40% of the zone followed by very cold full season temperature possessing about 34% of the zone. Generally, the area’s mean annual temperature is between 20-250c in the low land, 10-150c in the middle high land (Oromiya National Regional State, Office of President). It is widely known in its excess production wheat and knows as “wheat-belt” of Ethiopia. The main crops are wheat, barley, oil crops and pulses, teff, sorghum and maize. Livestock are the major resources in agriculture, being around 0.97 million sheep and goats, 0.32 million draught animals and 1.5 million of cattle.

Two areas were selected from Shirka Wereda which is among the 25 Weredas of Arsi Zone. Within this Shirka Wereda there are 33 rural and 3 urban kebeles. Among these total number of 36 kebeles, one urban (Gobbesa town) and one rural (Mitana Gado) kebele is selected for this study.

The first site is selected from the capital city which totally contains an urban population. The second site is Gobessa town is the central town for Shirka Wereda and it contains a sub-urban population. Finally, the third site is Mitana Gado rural Kebele containing a total of rural population. These three project sites are selected because they can be a representative of the entire country and it is believed that if CBMS implementation succeeds in these areas, it could also be a successful monitoring tool of poverty in other areas.

In addition to the data enumerators assigned by the project team, the local communities were also involved in data collection. There are more than five zones in each project sites and one individual has been involved in data collection acting as a guide and assisting the data enumerators and supervisor while difficult (unwilling) individuals has been faced during the census. The community representative in each zone is an individual who has an acceptance in the community and were able to convince households resisting to respond to the data enumerators. The data collection was completed in good manner creating extraordinary awareness among the society concerning the implementation of CBMS at local level.

In 2018, the implementation of CBMS in three areas in Ethiopia which include Addis Ketema
Wereda 10, Gobessa town, and Mitana Gado resulted to the establishment of a CBMS data bank of the selected study sites covering a total of almost six (6) thousand households and population of around 21,000.

2.3. Data Processing

After the completion of field data collection and all data from the census sites were uploaded on the CBMS Portal, data was processed by the local CBMS research team. Data processing involved the generation of the poverty and SDG indicators and their disaggregation from the CBMS census data. This required preparation of dataset (data cleaning and validation) and preparation of STATA do file. It also involved merging of household data with the rider questionnaire data using the STATA software to generate the indicators. Poverty maps and infographics of the CBMS results were prepared. Poverty maps, such as that shown in Figures 2 and 3, were produced using CBMS-QGIS software.

**Figure 2: Proportion of households living in a house made of standard materials, Ethiopia, 2018**

<table>
<thead>
<tr>
<th>Project Site</th>
<th>Total Magnitude</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wereda 10</td>
<td>1,083</td>
<td>59.7</td>
</tr>
<tr>
<td>Gobessa Town</td>
<td>437</td>
<td>16.3</td>
</tr>
<tr>
<td>Mitana Gado</td>
<td>8</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source of basic data: CBMS Census, Wereda 10, Gobessa Town, and Mitana Gado, Ethiopia, 2018
2.4. Data Validation

Data validation is one of the most important activities in CBMS implementation. Data validation is an organized activity wherein results generated from the CBMS are presented to the local administrative units and community representatives to obtain feedback and verify the accuracy of the data collected and key findings on the poverty situation of the community.

To prepare for the conduct of data validation in the CBMS, a report on the analysis of the CBMS data was produced by the CBMS Ethiopia research team. During the validation workshop, key results and findings were presented in info graphs and poverty maps form to local administrative units and community representatives for the participants to have a clear understanding the status of the poverty in the area and modifications could be made in case there are data that needs to be corrected. The data validation is also conducted to ensure the consistency of the data collected through CBMS with available data from different government sector offices. The forum was also an opportunity to meet representatives from the sectorial office and create awareness on the significance of implementing CBMS at the local level. Community representatives from the census sites and the local enumerators also participate in the data validation.

Different shape files, info graphs and pictures were used to make the parties have clear understanding the status of the poverty in the area and modifications could be made in case there are wrongly, collected data, missed data and elements during the census.

Figure 3: Proportion of households living in a house made of standard materials, Gobessa Town, Ethiopia, 2018

<table>
<thead>
<tr>
<th>Project Site</th>
<th>Total Magnitude</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gobessa Town</td>
<td>437</td>
<td>16.3</td>
</tr>
</tbody>
</table>

Source of basic data: CBMS Census, Wereda 10, Gobessa Town, and Mitana Gado, Ethiopia, 2018
2.5. Database Management

In the implementation of CBMS, the task of database management involves activities pertaining to managing data storage, access of the data and distribution of data to concerned authorities.

During the pilot test, a network with the local administrators (Wereda administrators in Addis Ketema Wereda 10 and Gobessa town and Mitana Gado Kebele administrators) is already established in the study areas. These local administrators have also provided the required support during the conduct of data collection particularly in terms of delineating the data enumerators, dealing with respondents who have refused to be interviewed and moving around the project site with enumerators.

Though their activities and responsibilities vary, numerous parties are involved in database management of the project. CBMS data were collected by local enumerators with a close follow-up of project supervisors who are responsible for checking, editing, processing and uploading data on the CBMS database (Portal). The CBMS Project leader was also involved in these activities while he was around the area while the enumerators and supervisors are performing these activities. Moreover, the project leader and members of the project team were involved in uploading, processing and data analysis for research proposes. The CBMS-Network Office, who developed and manages the CBMS International Network Portal, provides technical support to the CBMS Ethiopia Project Team in implementing necessary changes/updates (particularly relating to duplicate data entries/correction in HH IDs), after proper/required validation and confirmation of the Project Team of said needed changes.

On the other hand, given CBMS in Ethiopia is still in its developmental stage, necessary data sharing and access agreements and protocols have to be further discussed among the key stakeholders including the data users, the local authorities, the CBMS-Ethiopia Project Team of Arsi University and the CBMS Network Office.

3. Uses of CBMS

Poverty Profiling

Data produced from the initial implementation of CBMS, in the context of Ethiopia, in 2015 facilitated the preparation of a local poverty profile of Addis ketema Sub city Wereda 10 in Addis Ababa, and of kebele 01 city administration & Gedenser rural administration in Dire Dawa. The data helped the analysis of the status of the households and population in terms of the different dimensions of poverty including health and nutrition, housing, sanitation and water supply, education and social engagement, and also examine extent of inequality (Mehari et al., 2016). In particular, the poverty status of two administrative regions: Addis Ababa and Dire Dawa was assessed in terms of the different dimensions of poverty including the areas of health, education, access to sanitation, housing, economic production, income and food poverty, and social
engagement using household and individual level data generated from the implementation of CBMS.

**Youth Unemployment, Entrepreneurship, and Financial Inclusion**

In addition, CBMS data on the youth population in the pilot sites as well as the characteristics of their households and communities was also used to examine in detail the challenges and prospects of entrepreneurship development and job creation among youth (Mehari et al., 2016).

With the implementation of CBMS in additional sites in Ethiopia, particularly in Addis Ababa City and in Shirka Wereda in 2018, local level data was generated that helped identify and examine the factors that affect financial inclusion among the youth (Alemu, Mehari, & Yilma, 2019a). The research results and policy implications drawn from the CBMS data were disseminated and made available to concerned institutions and policymakers that are involved in the programs devoted to poverty reduction, support financial inclusion and youth entrepreneurship development.

**SDG Monitoring**

Moreover, CBMS data from Addis Ababa City and Shirka Wereda was used to generate indicators and their corresponding disaggregation that provides the status of the sustainable development goals at the wereda level (Alemu, Mehari, & Yilma, 2019b). The pilot implementation of CBMS for local SDG monitoring has generated data for 35 indicators across 11 of the global goals (Table 2) including those relating to poverty, health, education, gender equality, water and sanitation, clean energy, decent work, income inequality, peace, justice and strong institutions, and partnership for goals. CBMS data enabled the generation of a multidimensional poverty index at the wereda level.

**Table 2: CBMS-SDG Indicators, Ethiopia, 2018**

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>4</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population who are multidimensional poor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living in households with access to basic services</td>
</tr>
<tr>
<td>Goal 3 – Good Health</td>
<td>8</td>
<td>Maternal mortality ratio</td>
</tr>
<tr>
<td>--------------------</td>
<td>---</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of births attended by skilled health personnel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Under-five mortality rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neonatal mortality rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicide mortality rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Death rate due to road traffic injuries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 4 – Quality Education</th>
<th>2</th>
<th>Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Proportion of youth and adults with information and communications technology (ICT) skills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal 5 – Gender Equality</th>
<th>6</th>
<th>Proportion of women aged 20-24 years who were married or in a union before age 15 and before age 18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Proportion of girls and women aged 15-49 years who have undergone female genital mutilation/cutting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of women in managerial positions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of total agricultural population with ownership or secure rights over agricultural land; and (b) share of women among owners or rights-bearers of agricultural land</td>
</tr>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>Proportion of individuals who own a mobile telephone</td>
<td>2</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>Proportion of population using safely managed drinking water services</td>
<td>2</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water</td>
<td>2</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Proportion of population with access to electricity</td>
<td>2</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Proportion of population with primary reliance on clean fuels and technology</td>
<td>2</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Proportion of informal employment in non-agriculture employment</td>
<td>6</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Average hourly earnings of female and male employees</td>
<td>6</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Unemployment rate</td>
<td>6</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Proportion of youth (aged 15-24 years) not in education, employment or training</td>
<td>6</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Proportion and number of children aged 5-17 years engaged in child labor</td>
<td>6</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider</td>
<td>6</td>
</tr>
<tr>
<td>Goal 9 – Industry, Innovation, and Infrastructure</td>
<td>Manufacturing employment as a proportion of total employment</td>
<td>1</td>
</tr>
<tr>
<td>Goal 10 – Reduced Inequalities</td>
<td>Proportion of people living below 50 per cent of median income</td>
<td>1</td>
</tr>
<tr>
<td>Goal 16 – Peace, Justice and Strong Institutions</td>
<td>Proportion of children under 5 years of age whose births have been registered with a civil authority</td>
<td>1</td>
</tr>
<tr>
<td>Goal 17 – Partnership for Goals</td>
<td>Fixed internet broadband subscriptions per 100 inhabitants</td>
<td>2</td>
</tr>
<tr>
<td>Goal 17 – Partnership for Goals</td>
<td>Proportion of individuals using internet</td>
<td>2</td>
</tr>
</tbody>
</table>
CBMS generated data facilitated the analysis of development situation of households and individuals across socioeconomic characteristics i.e. age group, gender, disabilities, income class, employment status and sectors, and sub-location. CBMS data helped point out priority needs of the population in the areas of health, access to internet, and income earning capacities in the selected sites in Addis Ababa sub-city, and Mitana Gado that need attention of the local administration.

**Improving Local Planning**

The local and national administrators, particularly administration of Shirka Wereda and the National Plan Commission, have recognized the significance of implementing the CBMS methodology for identifying areas of priority and to monitor changes in poverty conditions overtime. The CBMS was appreciated by the local and national administration as a good tool for monitoring poverty since it provides disaggregated data at the household and individual level.

CBMS data is intended to be accessed and used by Wereda Administrators, for purposes of planning and program implementation in the context of poverty reduction, meeting the SDGs and other relevant development objectives. Specific CBMS data and findings of the study are also intended to be shared to the Federal government and government agencies such as the National Bank of Ethiopia, local micro finance institutions, health centers and other service institutions as well as to micro and small business development agencies, and other donor and development organizations such as UNDP, USAID, and UK AID as they are deemed useful inputs for planning and program implementation relating to SDGs, youth employment, and financial inclusion.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

Ghana has a population size of approximately 29 million as of 2017 with estimated population growth rate of 2.2%. In 2016, the GDP was estimated at GHC 36, 072.3 Million (Institute of Statistical Social and Economic Research [ISSER], 2017). Although Ghana is a lower-middle income country is still battling with issues of poverty, unemployment, housing deficit, inequalities, equity and inclusive growth among others. About 57% of the Ghanaian population are under the age of 25 years and the unemployment rate was estimated at 5.2% with more than a third of the working population underemployed (Ghana Statistical Service [GSS], 2014). Cooke, Hague, and McKay (2016) reported that inequality worsened in Ghana as evidenced in rise in Gini coefficient of 42.3 in 2013 as compared to 37 in 1992. From the 6th Ghana Living Standards Survey Report, about 56.3% of the adult population in Ghana was literate in English but 20% of the adult population had never attended school. About 60.6% of the households in Ghana lived in compound houses.

In 2017, a local research team proposed for the design and implementation of the CBMS to be able to assess the effectiveness of The Cassava: Adding Value for Africa (C:AVA) project in Ghana. The C:AVA project seeks to reduce poverty and improve access to markets by cassava value chain actors. The C:AVA project targets farmers and processors of cassava and consciously empowering women in selected communities in the Brong Ahafo and Volta Regions of Ghana. Implementation of C:AVA in the Brong Ahafo Region started in 2009-2014 (Phase 1) and 2015-2018 (Phase 2) covering 112 communities and total of 70 active groups. C:AVA project is funded by Bill & Melinda Gates Foundation (BMGF) and has strong relevance for the Agriculture sector in Ghana. The agriculture sector employs about two thirds of its population but the sector is challenged with issues of low productivity levels, post-harvest losses and low value addition along the commodity value chains (Food and Agriculture Sector Development Policy [FASDEP] II, 2013). Undoubtedly, women play very significant roles in the Ghanaian Agriculture Sector but receive little attention in the provision of agricultural services and inputs (Quaye et al., 2014; Ministry of Food and Agriculture [MoFA], 2014). Additionally, the project also aims to showcase the different uses of the CBMS data for local planning particularly for localizing the SDGs and preparing the SDG report. CBMS was earlier pilot tested in Ghana for poverty monitoring in selected sites in Dangme West district.

1.2. Local Government Structure

Ghana operates a decentralized governance system which is enshrined in the 1992 constitution (Article 35 (6d)) and established by an Act of parliament. The National Planning (Systems) Acts 1994, Act 480 stipulates that planning at all levels must be participatory, providing opportunities for all diverse and interest groups to be engaged in planning, implementation and monitoring of national and local development plans. The planning system is decentralized from the national level
to the sectoral, regional, district and sub-district/community levels and requires collaboration between district-level departments, public agencies, private sector entities as well as civil society organizations. Academic and research institutions, traditional authorities and other identifiable groups are also key stakeholders in the planning process. Ghana operates a 4-year planning cycle.

The Planning Ministry, National Development Planning Commission (NDPC) and the Local Government Service are jointly mandated to manage the decentralized planning system. The current local government system, as enshrined in the Local Government Act, 1993 (Act 462) is a four-tier structure as shown in Figure 2. It consists of 10 Regional Coordinating Councils (RCCs) at the regional level; 216 Metropolitan, Municipal and District Assemblies (MMDAs) at the sub-regional level at the time of implementing the CBMS.

The classification of administrative divisions in Ghana is done based on the population size, demographic characteristics and infrastructural needs for development. With the local government system, the first level of administration is at the regional level. The second-level administrative subdivisions of Ghana are the Metropolitan, Municipal and District Assemblies. The District Assemblies are either Metropolitan consisting of over 250,000 population, Municipal (over 95,000) or District consisting of over 75,000 population size. The third level of administration is the urban/town/area and zonal councils while the unit committee is the fourth-level. The unit committee comprises of 500-1000 population size for rural areas and up to 1500 population size for urban areas.

**Figure 1: Planning Structure in Ghana showing the stage of CBMS Application**

The Atebubu District has 8 area councils. The area council is the smallest planning unit at the district level. The unit committees are for electoral processes. The Konkrompe area council in the Atebubu-Amantin District is selected for the CBMS census because it has communities participating in CAVA project including Mem, Watro, Sanwakyi, Old Konkrompe and New Konkrompe. New konkrompe community (town) is peri-urban while Mem, Sanwakyi, Watro and Old Konkrompe are...
rural communities. Statically data on the district planning unit is lacking; that is a significant planning data gap that will be filled by the CBMS data collection.

The Municipal assembly rely on information from the central government to aid planning and administration as such that the CBMS data collected together with the assembly will go a long way to support planning and administration of the district and the communities. Also, data collected by the Ghana Statistical Services are usually analyzed at regional level, this puts limitations to available community level information to aid planning. Table 4 shows the Characteristic of Atebubu Amantin District and the New Konkrompe Area Council where the CBMS were conducted.

1.3. Review of Existing Monitoring Systems

Information on living conditions, demographic characteristics, education, health, employment and time use, migration and tourism, housing conditions, access to financial services, agriculture, perceptions of governance, peace and security have been generated through the Ghana Living Standard Surveys; the most recent being the sixth round of survey (GLSS6). Data from the GLSS have been used to prepare reports such as the Poverty Analysis Report, Labour Force Module and Child Lab reports. The GLSS has emerged as a tool used for welfare monitoring with other surveys like Core Welfare Indicators Questionnaire (CWIQ) and Ghana Demographic and Health Surveys (GDHS). The GLSS have been conducted in 1987, 1988, 1991/92, 1998/99, 2005/06 and 2012/13. The GLSS uses key questionnaire instruments including household Questionnaire, Community Questionnaire, Governance, Peace and Security Questionnaire and Prices of Food and Non-Food Items Questionnaire.

It is important to note that the GLSS, although conducted nationwide, is a survey using nationally and regionally representative sampling and not a census data collection methodology. The last population and housing census conducted in Ghana by the Ghana Statistical Service was done in 2010 and data published in 2012. Population census occurs at long term intervals. Census information is needed for effective planning of the provision of infrastructural amenities, helps in tracking poverty indicators such as education, access to health care, employment and housing among others. Generation of community-based census data for effective planning on developmental agenda at the local level rarely happen in Ghana. The GLSS gloss over community details. Census information at the community level is needful for planning developmental activities particularly at the local level but this is not done due to lack of resources to collect census data at the lowest possible level needed.

Ghana operates a 4-year planning cycle at all levels, meaning that ideally census data requirement should align with the planning cycles. This is where the Community-Based Monitoring System (CBMS) methodology comes in to fill in the data gaps that exist at the community level. The CBMS methodology also incorporates data needs for context-specific SDG indicators which makes it unique compared with the existing national level data collection methodologies.
2. CBMS Design

2.1. Key Features of CBMS

- It involves a census of all households in a community
- Local government unit (LGU)-based while promoting community participation
- Taps existing LGU-personnel/community members as monitors
- Generates a core set of indicators that are being measured to determine the welfare status of the population.
- Uses freeware customized for CBMS-data collection and poverty mapping
- Establishes database at each geopolitical level

The community members and local government staff in the Municipal Assembly were employed in the implementation of the CBMS tool. In other words, localizing the CBMS tool is very essential for the direct uptake and assimilation of the results that would be generated. This is because persons in the Municipal and communities would better appreciate the developmental issues to address and improve upon.

Data Collection of the current CBMS Methodology in the Atebubu-Amantin District Assembly Ghana involved local stakeholders. The Ghana-CBMS team made an initial visit to the Atebubu-Amantin District to introduce the objectives of the CBMS research design. With the help of the District Planning Officer, a list of communities and contact details of their respective Assemblymen were obtained for planning and preparation towards the CBMS Data collection. In addition, a list of National Service Persons (university graduates who had finished their first degree) residing in the District, Assemblymen and Teachers was obtained with the help of the District Planning Officer and the C:AVA Contact person for screening as enumerators. Key players and activities undertaken regarding field data collection and timelines were as follows:

- Visit to the Atebubu-Amantin District and some communities by the CBMS Research team to brief the District Assembly about the CBMS Methodology and the implementation process and to obtain listing of communities.
- A tentative list of households from the community leaders which was supposed to be led by the District Planning Officer before actual listing of households. But the list of households was not available at the community level and had to be generated along the data collection;
- Finalization of questionnaires and drafting of training manuals by the local CBMS Research team;
- Recruitment of Enumerators from the study area led by the local CBMS research team and the District Planning Officer;
• Training of selected enumerators in Atebubu
• Assigning of zonal (cluster of Communities) to Supervisors and enumerators; and
• Field data collection

2.2. Adjustment of CBMS Methodology to Ghana’s Context

The Ghana CBMS Team reviewed the earlier CBMS indicators developed by CEPA (Asante & Oduro, 2006) to capture the multidimensional aspects of poverty among communities within Municipals and District assembly. The list of CBMS core indicators were developed and localized to capture the local Ghanaian context.

2.2.1. Core Poverty Indicators

The CBMS implemented in Ghana collected data on a set of core poverty indicators categorized in 9 dimensions including health, education, housing, water and sanitation, energy, income, employment and nutrition. Table 1 shows the 11 core poverty Indicators to be monitored by CBMS in Ghana representing the different dimensions of poverty.

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Proportion of children under 5 years old who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy-related causes</td>
</tr>
<tr>
<td>Education</td>
<td>Proportion of children aged 6-11 years old who are not attending school</td>
</tr>
<tr>
<td>Housing</td>
<td>Proportion of households living in makeshift housing/ informal settlements</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households without access to safe drinking water</td>
</tr>
<tr>
<td></td>
<td>Proportion of households without access to sanitary toilet facilities</td>
</tr>
<tr>
<td>Energy</td>
<td>Proportion of households without access to improved cooking fuel</td>
</tr>
<tr>
<td>Income</td>
<td>Proportion of households with income below the poverty level</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Employment</td>
<td>Proportion of persons in the labor force who are unemployed/job poor</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Proportion of children 0-5 years old who are moderately or severely underweight</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 0-5 years old who have low height compared to their age</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 0-5 years old who have low weight compared to their height</td>
</tr>
</tbody>
</table>

For the CBMS initiative in 2018, while the same indicators were adopted in the new study sites, an additional indicator was computed: The multi-dimensional poverty index particularly as part of monitoring the SDGs and preparation of the local SDG report. The MPI used the CBMS data on housing, assets, sanitation, water, electricity, nutrition, child mortality, school attendance and schooling. The multidimensional poverty index (MPI) reflects the synergies among the target indicators clearly demonstrating interlinkages among SDGs 1, 2, 3, 4, 6 and 7. The CBMS implementation in the study areas in 2018 also generated indicators of gender specific differences on household decision-making on access to productive assets (land, seeds, and extension services, among others) as well as socio-cultural limitations to participation in programs, projects and interventions.

2.3. Data Collection

2.3.1. Data Collection Instruments

The CBMS Accelerated Poverty Profiling (CBMS APP), a tablet-based data collection system using the CBMS software (CBMS SCAN) installed in tablets used in the conduct of CBMS census and rider survey, and the CBMS Portal for database management. These tools were used by the trained local enumerators of the CBMS-Ghana research team in collecting household-level, individual-level and community-level data. This is the first time that a tablet-based data collection system was used to collect census household-level information in Ghana.

Data collection involved the use of 3 sets of questionnaires and a training manual:

- CBMS Household Questionnaire to collect data on poverty dimensions at the household level;
- CBMS Community level Questionnaire to collect data on poverty dimensions at the community level; and
- Rider Questionnaire.
The Ghana CBMS household questionnaire comprise of detailed sections relating to (i) housing and household characteristics, (ii) demography, (iii) education and literacy, (iv) economic activity and sources of income, (v) health and nutrition, (vi) water and sanitation, (vii) waste management, (viii) energy, (ix) calamity, hunger, disaster preparedness, and death, and (x) access to interventions and programs. The questionnaire was pre-tested at the census site before the actual data collection.

Questionnaires were converted to tablet-form through the CBMS SCAN software. The pre-tested questionnaires (CBMS SCAN form) were installed onto a tablet using the CBMS APP tools (CBMS Scan software and CBMS Portal) for the data collection exercise. Using a tablet-based data collection system to collect household-level information in Ghana was beneficial as the CBMS Scan installed in Android tablets was used for hands-on-demonstration to collect data in the field during the training session organized for enumerators and the supervisors. The CBMS Scan tablet was also designed to pick the Global Positioning System (GPS) of all the households in the survey communities.

The community profile questionnaire was administered by lead enumerators during the census to opinion leaders/District Assembly/area council leaders. The community profile questionnaire collects information and data on physical and demographic characteristics of the community including land area, number of households, population, economic activities, infrastructure and service institutions such as health and educational facilities, financial institutions, police station, post office, agricultural facilities such as mills, markets, input supply, others are water supply, sources of energy, waste disposal system, disaster and risk management, significant events and decision making arrangement.

A rider questionnaire was developed to gather additional data to further examine issues on address gender gaps, women empowerment and livelihoods of C:AVA beneficiaries vis-à-vis non C:AVA beneficiaries. The questions cover incomes, market access, intra-household decision making and access to production resources also regarding empowerment and barriers to participation in intervention programs by gender. Others are extension services and support received under the C:AVA project. The rider questionnaire was administered together with the household profile questionnaire to one respondent of the household.

The data collection was conducted through a household census. Every single household in each community in the pilot area was interviewed during the period of enumeration. In addition, households were assigned with reference codes to indicate their involvement in the CBMS census process. Some of the communities were very small and could be described as farming settlement with as low as 5 households. These were also covered to ensure that no one is left behind in achieving the Sustainable Development Goals (SDGs).

At least 2,713 households were covered by the CBMS census from 20 communities including New Konkrompe, Afrefreso, Sawakye, Old Konkrompe, Mem and Watro in the Konkrompe Area Council in the Atebubu District. The actual data collection exercise ran for about 1 month.
2.3.2. Identification and Training of Local Enumerators

Local enumerators were selected based on level of education and residence in the district. Twenty (20) enumerators were tapped and trained to conduct the CBMS census. On the other hand, only 19 enumerators were deployed for the actual data collection since one of the trained enumerators, who was an Assemblyman, had to be dropped because he was not very good at the use of tablet for data collection.

A 5-day training including hands-on-demonstration on the field was organized and conducted prior to the data collection. The training activities include introduction to the CBMS initiative, the objectives, and communities to be surveyed, presentation and discussion of the household and community questionnaires, and hands-on demonstration of the use of the CBMS tablet system for data collection. It also covered a test-trial among enumerators in the classroom, field trials using the CBMS SCAN forms, and discussion of feedbacks by the enumerators.

2.3.3. Field Operations

Some of the challenges encountered were capacities to handle data collection tablets, improper demarcation of community settlements that made questionnaire administration difficult, long distance travels and sometimes frequency of visit to households to be able to complete administration of questionnaires. These were solved through the following strategies:

- Tablets were handed over to lead enumerators at the end of every day to ensure proper check-up of the tablets.
- Enumerators were assisted by unit committee’s chairpersons and assembly persons with the concern of the chief in each community to determine the proper demarcations of settlements.
- The elders in the communities assisted enumerators by spreading out the information about the census to all populace at each community.
Figure 2 shows an organogram of the share of activities and responsibilities of the CBMS research team in the process.

2.3.4. Study Area/Coverage

The Atebubu-Amantin district has five area councils including Nyoamoase, Tato Zongo, Garidema, Duabone and Konkrompe. The Community-Based Monitoring System (CBMS) was implemented in selected communities in a planning unit in Atebubu-Amantin District in the Brong Ahafo Region (see Figure 1). Twenty communities were covered in the 2018 CBMS and had a total population of 10647 with males constituting 50.2% and Females 49.8%. The average household size was approximately 5.2 people.

Only 1 out of the 20 communities covered was considered to be peri-urban as per definition of urban location in Ghana. Majority of the population (71.4%) were Christians, Muslims (21.3%) and Traditionalist and other religion (7.3%). Regarding ethnicity, about 59% of the population were Akans and Kokombas constituted 21%.

Majority (74.5%) of the working population were into agriculture. Crops cultivated include cassava, maize, yam, rice, groundnut and cowpea. Some of the livestock reared include goat, cattle and chicken.
Overall, the implementation of CBMS methodology is expected to improve capacity at the district and planning unit levels in data collection, processing and analysis for effective planning of programs and policies. The target users are the District Planning Officers, Unit Committee leaders and Assemblymen at the community level.

2.4. Data Processing

The CBMS data collected from the census site were processed by the CBMS Ghana research team using STATA Statistical Software version 15. Processing of data entailed CBMS HH IDs were cleaned to remove duplicate household data resent by enumerators to ensure uniqueness of household data and conduct of descriptive and inferential analyses, Data was processed to generate the CBMS core indicators and SDGs profiled for the study area (Agyeman et al., 2019) and the data requirements for assessing the effectiveness of C:AVA as an intervention tool to address gender gaps, empower women, and improve on the livelihood situation of its beneficiaries.

Poverty maps were generated using QGIS software. GPS readings of household locations were gathered with the CBMS data thus making it possible to generate CBMS indicator maps included in the SDG report.

CBMS data processed in STATA is presented in tabular and poverty maps form (Figures 4 and 5) for reference of the local stakeholders. Particularly for this study, target user of the data is the Municipal Assembly for them to appreciate the need to monitor the effectiveness of development interventions and also monitor the SDGs locally.
2.5. Data Validation

A community-based validation workshop was organized and conducted by the CBMS Ghana research team to present and discuss the preliminary findings of the CBMS census to the stakeholders at the community level. The participants for the validation comprised of the Municipal Assembly staff and representatives from each community as well as the Deputy Coordinating Director of the Municipal being present. In this activity, the participants also discussed the underlying reasons from the CBMS results. They were also consulted on how to put the data to
many uses at the community planning level. Policy recommendations were also drawn by the Municipal Planning and Coordinating Unit (MPCU) as a result of the validation activity.

2.6. Database Management

Database will be made available to the local stakeholders for practical use on how to reach the poor with tailored development related interventions.

The CBMS database is intended to be a useful tool for the Municipal and District Assembly to track impacts of interventions, projects and programmes in communities.

3. Uses of CBMS

**Poverty Profiling**

Three communities (Dodowa, Prampram, and Ningo) in the rural district of Dangme West were chosen as the pilot sites for CBMS in Ghana. Data on demography, education, political participation, employment, health, child mortality, housing and shelter, lighting, water and sanitation, income and livelihood, peace and order, access to social and community services, and access to social programs were collected from around 6,000 households (Asante, 2006).

**MDG Monitoring**

CBMS has also been used as a tool to measure and monitor Ghana's progress towards the Millenium Development Goals (MDGs) (Asante & Tagoe, 2008). Table 2 shows the CBMS indicators generated for MDG monitoring in Dangme West district.

<table>
<thead>
<tr>
<th>Millenium Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – Eradicate extreme poverty and hunger</td>
<td>1</td>
<td>Proportion below the national poverty line</td>
</tr>
<tr>
<td>Goal 2 – Achieve universal primary education</td>
<td>2</td>
<td>Gross Primary Enrolment ratio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net Primary Enrolment ratio</td>
</tr>
</tbody>
</table>
Goal 3 – Promote gender equality and empowerment

<table>
<thead>
<tr>
<th>SDG</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Ratio of females to males in primary school and junior secondary school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ratio of females to males in senior secondary school</td>
<td></td>
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</tbody>
</table>

Goal 4 – Reduce child mortality

<table>
<thead>
<tr>
<th>SDG</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Under five mortality per 1,000</td>
<td></td>
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</tbody>
</table>

Goal 5 – Improve maternal health

<table>
<thead>
<tr>
<th>SDG</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maternal mortality per 100,000</td>
<td></td>
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</tbody>
</table>

Goal 6 – Combat HIV/AIDS, malaria and other diseases

<table>
<thead>
<tr>
<th>SDG</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>National HIV prevalence rate</td>
<td></td>
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<tr>
<td></td>
<td>Reported cases of malaria</td>
<td></td>
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</tbody>
</table>

Goal 7 – Ensure environmental sustainability

<table>
<thead>
<tr>
<th>SDG</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Proportion of overall population with sustainable access to an improved water source</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of rural population with sustainable access to an improved water source</td>
<td></td>
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</tbody>
</table>

Goal 8 – Develop a global partnership for development

<table>
<thead>
<tr>
<th>SDG</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Telephone lines and cellular subscribers per 100 population and Internet users per 100 population</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personal computers in use per 100 population</td>
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</tbody>
</table>

SDG Monitoring

CBMS has facilitated the preparation of the local SDG report (Quaye et al., 2019) for the pilot site which provided a situationer on the status of conditions of households and individuals in the community in terms of the different areas of the SDGs. Table 3 shows the CBMS indicators generated for SDG monitoring in the locality.

Table 3: CBMS-SDG Indicators, Ghana, 2018

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>4</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td>Goal</td>
<td>Indicator</td>
<td>Descripption</td>
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<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2 – Zero Hunger</td>
<td>Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions</td>
<td>Proportion of population living in households with access to basic services</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3 – Good Health</td>
<td>Proportion of children less than 5 years old who died</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>4 – Quality Education</td>
<td>Proportion of children attending school: (a) aged 6-11; primary school; (b) aged 12-15; junior secondary school; and (c) aged 6-15; primary and junior secondary school</td>
<td></td>
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<td></td>
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<tr>
<td>5 – Gender Equality</td>
<td>Proportion of individuals (12 years old and older) who own a mobile phone</td>
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<td></td>
<td></td>
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<tr>
<td>6 – Clean Water and Sanitation</td>
<td>Proportion of population using safely managed drinking water services</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population with access to sanitary toilet facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 – Affordable and Clean Energy</td>
<td>Proportion of population with access to electricity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 – Decent Work and Economic Growth</td>
<td>Unemployment rate</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 – Reduced Inequalities</td>
<td>Proportion of people living below 50 percent of median income</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 – Peace, Justice and Strong Institutions</td>
<td>Proportion of population who are victims of crime</td>
<td>Proportion of children under 5 years of age whose birth has been registered with a civil authority</td>
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<tr>
<td></td>
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</tbody>
</table>
The implementation of CBMS has provided a road map for the Municipality to be informed in terms of basic development needs of their community. Moreover, it has equipped the Municipal Planning Office in terms of knowledge of using the CBMS tool for generating local data requirements. The CBMS tool provided a database for Municipal and District Assembly that would be a useful tool to track interventions of projects and programmes which are conducted in communities. In addition, CBMS implementation has raised awareness among local leaders at the communities on the use of CBMS for effective monitoring of their poverty indicators. The communities were also enlightened on the SDGs which revealed that poverty was a problem in the pilot site. Sanitation was also pointed out by the CBMS data generated as a big challenge in the area.

With the data generated from CBMS, the MPCU were able to draw the following needs and recommendations:

1. Need to create business enabling environment to increase employment opportunities in the municipality especially the deprived areas.

2. The results revealed that, about 75% of the municipality population is estimated to be living in poverty which affects their living standards and basic needs. In combating this to achieving the SDG 1 as ending poverty in all forms, the MPCU recommended that, a programme should be rolled out such as training workshops and sensitizations on economic empowerment for women groups and the youth in selected communities to enable them improve their economic activities to earn them daily income.

3. The results also revealed that, below 50% of the population did not have access to basic services such as adequate toilet facilities, potable water and electricity. In order to achieve goal 6, 7, and 11 of the SDGs the MPCU and key stakeholders of selected communities recommended that, a program should be rolled-out to provide and sustain potable water (borehole) and household latrines for selected deprived communities in the municipality.

4. A support from International Organizations to Municipal Assembly to subsidize the cost of construction of household latrines in deprived communities within the municipality.

5. According to the results, about 3% of the population has access to internet and less than 50% did not have mobile phones. To have access to information communication and technology in the deprived areas, there is a need for communication network providers to render and improve access to information, communication and technology and if possible communication mask should be constructed at the deprived areas to provide them with access to communication, Information and Technology.

6. The CBMS results further indicated that, about 20% of children aged ≤5 years are in pre-
schools in the communities in the municipality. The MPCU recommended to tap international development partners who can support facilitate a program that will help increase the number of children in pre-school in all deprived communities.

**Impact Analysis**

Data generated from CBMS also enabled the conduct of analysis of the effect of C:AVA project, which incorporated gender and women empowerment on income, participation in decision making, and access to market (Boadu et al., 2019).
References


Food and Agriculture Sector Development Policy II. (2013). Food and Agricultural Sector Development Policy, Ministry of Food and Agricultural, Ghana.


1. Context and Rationale for the Implementation of CBMS

1.1. Background

The first attempt to implement CBMS in Kenya is traced to the development of a Local Poverty Monitoring System (LPMS) in Tana River district between 2007-2008. The LPMS sought mainly to identify the various causes of poverty in the district and the effect of poverty on household access to basic services. Three phases were implemented. These involved a qualitative study, a census in Meti, Hola, and Tarasaa sub-locations, and an implementation of the revised LPMS design in Bura division, Tana River district. The LPMS was implemented by the African Institute for Health and Development (AIHD) with support from the CBMS Network through a grant from the Partnership for Economic Policy (then known as Poverty for Economic Policy). Under the AIHD and CBMS Network collaboration, supported by United Nations Childrens Fund (UNICEF), CBMS was also used as a platform to generate local data and examine household coping responses in complex crisis.

In 2016, the implementation of CBMS in Muthithi location in Murang’a County was initiated by researchers from the University of Nairobi. With the new constitution coming into being in 2010, Kenya ushered in among other things devolution to 47 Counties. This meant power and resources being devolved to the 47 Counties. Community-based monitoring system (CBMS), a tool that supports devolution, is a system of collecting data at the local level from all households in the chosen area that seeks to promote evidence based decision making by integrating data collection into the planning and implementation of projects (Reyes et al., 2004).

Each county is responsible for identifying the needs of its county and for developing solution to the identified needs. Every county also has to invest in local solutions for local problems. The fact that the counties are new political units with minimal information available, the implementation of a CBMS comes in handy to collect local information that can then inform local planning. Through CBMS, county planning officials can collect information on the population and know the needs of the population. The CBMS data can be used to develop programs and policies in line with the needs of the people. The establishment of CBMS also involves training the local officials to own the data collection process and as such can collect the data themselves. This way, their policies and programs are continuously guided by evidence.

1.2. Local Government Structure

The local government in Kenya provided for in Article 6 of the Kenyan constitution adopted in 2010 divides the Country into 47 counties. The county governments consist of the county assembly and the county executive. The County assembly is composed of members elected by voters from each
ward. In addition we have special nominees by political parties to ensure that no more than two thirds of the assembly comprises of people of the same gender and also to ensure marginalized communities, youth and people living with disabilities are represented. The County executive comprises of the Governor, Deputy Governor and appointees by the Governor and approved by the County assembly. For effective administration, counties are divided into sub-counties and further into locations/wards headed by chiefs. Murang’a County has 35 wards/locations. Service delivery is implemented by county departments each lead by a county executive committee member appointed by the Governor. There are 10 departments in each county. CBMS data are available for use by all these departments. They include: education, agriculture, environment, health, planning and gender affairs departments.

1.3. Review of Existing Monitoring Systems

The main poverty monitoring system in Kenya is the nationally representative Kenya Integrated Household Budget Survey (KIHBS) formerly the welfare monitoring surveys (WMS). The surveys began in 1981/2 with the first welfare monitoring survey (WMSI). This was followed by the second welfare monitoring survey in 1994 (WMSII) and the third in 1997(WMSIII). From 1997, poverty was monitored through the KIHBS with the first one carried out in 2005/6. The second KIHBS was conducted in 2015/16. The main objective of the surveys is to provide poverty and inequality statistics as well as measure standard of living to enable policymakers assess the wellbeing of Kenyans. The reports based on these surveys provide estimates of poverty both at national and regional levels. Some of the measures of poverty reported include: food, absolute and hardcore poverty by area of residence and region.

One drawback with these surveys is that they are conducted once after every ten years. This period is long enough to create a gap in information and can negatively affect the planning process. Within a ten year period, many individual and household characteristics are expected to change. These surveys also attempt to cover the entire population by using samples. The samples are expected to represent the population. However, the samples may not accurately reflect the characteristics of the entire population and therefore, decision making based on these sample characteristics may be inaccurate. CBMS overcomes this weakness in the sense that census are conducted and that the capacity of the locals are built so that they can frequently collect the statistics.

Existing poverty monitoring surveys are also limited in the sense that they cannot generate panel data since households interviewed for a particular survey period are not traced and re-interviewed in the subsequent rounds of data collection. This limitation results to difficulty in knowing the current state of poverty condition of a household that was previously identified as poor and this can affect the accuracy of programs and policies being implemented. The CBMS intends to address this limitation by tracking and mapping conditions of all the households with more regular data collection and poverty monitoring overtime.
2. Key Features of CBMS

The key features of the CBMS adopted in Kenya mirror the methodology developed by Reyes et al. (2004).

a. *Data is collected from all the households in the selected community:* All households in the sub locations of Kambirwa, Gikindu, and Mirira in Gikindu location were covered.

b. *Community members and leadership are involved in the collection and validation.* Data enumerators were taken from the community: Young people who had at least a college degree or diploma were tapped as data collectors. The use of local enumerators not only created employment to the youth in these sub locations but also made the whole data collection easier as the youths were already known in the study area thus making it easier to interact with the respondents. They had a master of the local language making communication easier. Further it made cost of data collection less as the enumerators were staying home. Dissemination workshops were later organized at the local level to give the community a chance to validate the project findings.

c. *Taps existing personnel at the local level as monitors.* The members of the steering committee which provided critical advice throughout the project phase were selected from the local community administration, the local authority (county government of Murang’a), and an NGO operating in the area. The local CBMS steering committee comprising of the County Director of Planning, the County Director of Youth and Gender, the NGO representative and the community leaders have played a critical role in advising the research team on understanding of the local community dynamics and formulation of possible interventions in line with the study findings.

The project’s key players were the following:
1. Ministry of Devolution and Planning at the County level
2. Youth and Gender Office
3. Local Government Leaders (chief and sub-chiefs)
4. Households in Gikindu location
5. Local NGOs
6. Project team
7. Steering committee

d. *Generates a core set of indicators that captures the multidimensional aspects of poverty.* CBMS-based SDG indicators were generated and a multi-dimensional poverty index computed.

e. *Established database at each geopolitical level.* The data collected is disaggregated by the 3 sub-locations in Gikindu location which is available for use by the officials of the county and respective departments.
2.1. Indicators

2.1.1. Core Poverty Indicators

The CBMS core indicators aim to capture multiple dimensions of poverty and accommodate community-specific characteristics. These dimensions include health, nutrition, water and sanitation, shelter, peace and order, income, employment and education. The CBMS core indicators developed in 2016 and earlier implemented in Muthithi location were also adopted for Gikindu location, both in Murang’a County.

Table 1: CBMS Core Indicators, Kenya, 2018

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Proportion of under-five children’s deaths</td>
</tr>
<tr>
<td></td>
<td>Proportion of women deaths due to pregnancy related causes</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with members suffering from preventable conditions e.g. malaria and diarrhea in the last four weeks prior to the survey</td>
</tr>
<tr>
<td>Hunger</td>
<td>Proportions of households with children 0-5 years old who are malnourished</td>
</tr>
<tr>
<td></td>
<td>Proportion of households that experienced hunger due to food shortage in the last 3 months</td>
</tr>
<tr>
<td>Shelter</td>
<td>Proportion of households living in makeshift housing</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households with access to safe drinking water</td>
</tr>
<tr>
<td></td>
<td>Proportion of households with access to sanitary toilet facilities</td>
</tr>
<tr>
<td>Basic education</td>
<td>Proportion of children aged 6-13 years old who are not in primary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 14-17 years old who are not in secondary school</td>
</tr>
<tr>
<td>Income</td>
<td>Proportion of households with consumption below national poverty line (Kshs 1257 per month)</td>
</tr>
<tr>
<td>Employment</td>
<td>Proportion of persons in labour force who are unemployed</td>
</tr>
<tr>
<td>Peace and order</td>
<td>Proportion of persons who are victims of crimes</td>
</tr>
</tbody>
</table>
For the latest implementation of CBMS, additional data were gathered and processed to generate SDG indicators at the local level. Data collection was conducted from March to May 2016.

2.2. Data Collection

2.2.1. Data Collection Instruments

Three sets of questionnaires were used to collect data; a household questionnaire, a rider questionnaire on social capital and women empowerment and a community questionnaire.

The household questionnaire was used to collect information at the household level. The respondents to this questionnaire were a member of each household, preferably the head of household or spouse. The questionnaire was used to collect information on housing characteristics (type of house, roofing materials, etc.), household characteristics (expenditure and access to basic services like water and toilet) and characteristics of the household members (education, demography etc.).

The rider questionnaire, on the other hand, was used to collect additional information from women aged 18 and above who were household heads (in female headed households) or spouses of household heads. The questionnaire mainly collected information on women’s social capital, access to funds, entrepreneurship, and proxies of women empowerment. The rider survey form was administered after the completion of the household questionnaire.

Additional community level information such as availability of key facilities like schools, hospitals etc. in the community and distances to these facilities was captured using the community questionnaire. The respondent to this questionnaire was the community leader i.e. the location chief and the sub-location’s assistant chief. The questionnaire was administered by supervisors at the same time of the household census operations.

The tablet system for data collection, facilitated by the CBMS APP tools (CBMS SCAN and Portal) facilitated the simultaneous conduct of data collection and encoding during the field data collection. This speeds up data processing after the data collection is completed.

2.2.2. Identification and Training of Enumerators

One feature of CBMS is use of local personnel. In line with this, the Kenya CBMS team ran an advertisement through local churches and local administration officials requiring qualified young people to come for an interview. Enumerators were then selected from the local community. Use of local enumerators not only created employment for the youth in these sub locations but also made the whole data collection easier as the youths were already known in the study area and so it was easier for them to interact with the respondents. Selecting from locals also ensured we have enumerators who can speak the local dialect and therefore translated some questions that may not
be very clear for the respondents in English. They had a master of the local language making communication easier. Further it made cost of data collection less as the enumerators were staying home. This also created an aspect of ownership.

The enumerators were expected to have at least a degree or a diploma with having participated in data collection previously being an added advantage. Such enumerators easily understood how to work with android tablets used in data collection. The Android tablets were installed with the CBMS APP tools (CBMS Scan form and CBMS Portal) developed by the CBMS Network.

The local enumerators were trained on the use of the questionnaires and the tablet system for data collection. The research team of University of Nairobi supervised the conduct of data collection including pre-testing of the instruments prior to the actual conduct of the household census. Local authorities was responsible for introducing the team to the census area, communicating the importance of what the enumerators were doing and the benefits of the CBMS implementation to the community.

The data collection process lasted for one month. Each enumerator was required to administer at least seven questionnaires a day. It took about one hour to administer one household questionnaire and the rider. On the average, all enumerators collected about 175 questionnaires each. The table below shows the key players and their roles during the data collection process.

<table>
<thead>
<tr>
<th>Key player</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enumerators</td>
<td>• Administering Household and rider Questionnaires</td>
</tr>
<tr>
<td></td>
<td>• Verifying and uploading questionnaires to the CBMS portal</td>
</tr>
<tr>
<td>Supervisors</td>
<td>• Administering community questionnaires</td>
</tr>
<tr>
<td></td>
<td>• Supervising enumerators</td>
</tr>
<tr>
<td></td>
<td>• Counterchecking quality of the filled questionnaires before uploading to the CBMS portal</td>
</tr>
<tr>
<td>Local administration</td>
<td>• Creating public awareness about the data collection</td>
</tr>
</tbody>
</table>

2.2.3. Census Area/Coverage

The 2016 CBMS census was carried out in 5 sub-locations of Muthithi location which are Muthithi, Gikarangu, Kiahiti, Kagurumo, and Mungu-ini covering 4,163 households and 11,810 individuals. The youth population was 2,526.
The new CBMS site is Gikindu location still in Murang’a County. All households in the sub locations of Kambirwa, Gikindu and Mirira in Gikindu location were covered. Table 1 shows the household and population covered in the CBMS implementation:

Table 3: Households and individuals in Gikindu location, by sex, 2018

<table>
<thead>
<tr>
<th>Location</th>
<th>Sub-location</th>
<th>Households Interviewed</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>Gikindu</td>
<td>Kambirwa</td>
<td>1,225</td>
<td>1,778</td>
</tr>
<tr>
<td></td>
<td>Gikindu</td>
<td>931</td>
<td>1,226</td>
</tr>
<tr>
<td></td>
<td>Mirira</td>
<td>1,323</td>
<td>1,684</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3,479</td>
<td>4,688</td>
</tr>
</tbody>
</table>

2.3. Data Processing

The collected data was processed by the CBMS Kenya research team of University of Nairobi. The CBMS Team processed and analyzed the collected data using STATA software. The STATA software allowed the team to come up with simple descriptive statistics on key variables to help answer the various research questions. The software also allowed the team to carry out econometric analysis whereby probit and instrumental variable models were estimated. GIS maps of the CBMS results were also generated using the ArcGIS software. The maps showed the specific locations where individuals with specific characteristics such as where the poor, where the economically empowered etc. are located.

Figure 1: Proportion of households with access to safe drinking water, Kenya, 2018

Source of basic data: CBMS Census, Gikindu Location, Kenya, 2018
2.4. Data Validation

A consultative/validation workshop in Gikindu location was conducted on March 6, 2019 to present a summary of the key findings from the collected CBMS data. The workshop was attended by Murang’a County government officials, local chiefs, village elders, NGO representatives and researchers. During the workshop, the stakeholders confirmed the findings as reflective of the situation in Gikindu. The county government officials committed to consider the proposed programs, projects and policies in the next financial year’s budget. The county government has also shown willingness to incorporate the CBMS methodology in the county planning framework following successful implementation of CBMS in Muthithi and Gikindu locations within the county.

2.5. Database Management

The data collected is disaggregated by the 3 sub-locations in Gikindu location which is available for use by the officials of the county and respective departments. The CBMS database is intended to be turned-over to the Murang’a County planning office. The database aims to provide useful information for planning and decision making. The database can then be regularly updated. The Country office can share results with other departments/officials as well as with other counties.
3. Uses of CBMS

**Poverty Profiling of Pastoral Communities**

CBMS was used to set up a local poverty monitoring system (LPMS) in select divisions (Bura, Garsen, and Galole) in Tana River district, primarily chosen due to the area being one of the poorest in the country and being prone to both drought and ethnic conflict (Amuyunzu-Nyamongo & Nchogu, 2008). The study was conducted to design a system which can assess the poverty situation in the farmer and pastoralist communities, help design poverty-reducing interventions, and identify target program beneficiaries.

**Monitoring Household Coping Responses during Complex Crisis**

As part of the efforts of the CBMS Network to capture the impact of the global financial crisis (GFC) in several countries, a study in Kenya was conducted to assess the impact of GFC in Tana River, Murang’a, Kilifi, and Kisumu (Amuyunzu-Nyamongo et al., 2011). Through CBMS, several outcome indicators, impact indicators, and indicators on coping mechanisms were constructed to determine the impact of GFC on the communities and its effects on access to basic services and monitor the households’ coping mechanisms in relation to the GFC.

**SDG Monitoring**

The implementation of CBMS in Murang’a County facilitated the generation of data for SDG profiling at the local level. It also provided data for examining determinants of youth employment and entrepreneurship in the location (Kimani et al., 2016). Moreover, the CBMS was also used for a case study on social capital and women empowerment in Kenya using the context of Muthithi.

CBMS-based SDG indicators were used in the construction of a localized SDG profile. The implementation of CBMS in Murang’a County produced the data disaggregation needed such as by age, by sex, by disability among others to show how the overarching pledge of the SDGs to “leave no one behind” can be monitored at the local level. The SDG paper written by the Kenya CBMS Team is a first in terms of localizing the SDGs in a county in Muthithi. Table 4 shows the local SDG indicators generated from the CBMS database of the pilot site.
**Table 4: CBMS-SDG Indicators, Kenya, 2018**

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>2</td>
<td>Proportion of population below the international poverty line, by sex, age, employment status, and geographical location (urban/rural)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line, by sex and age.</td>
</tr>
<tr>
<td>Goal 2 – Zero Hunger</td>
<td>2</td>
<td>Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)</td>
</tr>
<tr>
<td>Goal 3 – Good Health</td>
<td>1</td>
<td>Maternal mortality ratio.</td>
</tr>
<tr>
<td>Goal 4 – Quality Education</td>
<td>2</td>
<td>Participation rate in organized learning (one year before the official primary entry age), by sex.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participation rate of youth and adults in formal and non-formal education and training in the previous twelve months, by sex.</td>
</tr>
<tr>
<td>Goal 5 – Gender Equality</td>
<td>1</td>
<td>Proportion of time spent on unpaid domestic and care work, by sex, age and location.</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>2</td>
<td>Proportion of population that use safely managed drinking water services.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population that use safely managed sanitation services, including a hand-washing facility with soap and water.</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>2</td>
<td>Proportion of population with access to electricity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population with primary reliance on clean fuels and technology</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>2</td>
<td>Unemployment rate, by sex, age and disability status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of youth (aged 15-24 years) not in education, employment, or training.</td>
</tr>
<tr>
<td>Goal 9 – Industry, Innovation and Infrastructure</td>
<td>1</td>
<td>Proportion of population covered by a mobile network, by kind of technology.</td>
</tr>
<tr>
<td>Goal 10 – Reduced Inequalities</td>
<td>1</td>
<td>Proportion of people living below 50% of median income, by age, sex, and disability status.</td>
</tr>
<tr>
<td>Goal 11 – Sustainable Cities and Communities</td>
<td>1</td>
<td>Proportion of urban population living in slums, informal settlements or inadequate housing.</td>
</tr>
<tr>
<td>Goal 16 – Peace, Justice and Strong Institutions</td>
<td>1</td>
<td>Proportion of population subjected to physical, psychological, or sexual violence in the previous twelve months.</td>
</tr>
</tbody>
</table>

**Youth Unemployment Analysis**

Aside from providing Kenya with a baseline data for use in designing policies at the local level, CBMS was also used to determine the causes of youth unemployment and analyze the youth’s entrepreneurial activities (Kimani et al., 2016). The CBMS-Kenya project team identified possible
interventions or strategies in order to promote entrepreneurship in the sub-locations of Muthithi, Gikarangu, Kiahati, Kagurumo, and Mungu-ini.

**Women Empowerment**

A CBMS study was also conducted to analyze patterns in the different dimensions of women’s empowerment across population subgroups, determine the extent of women’s access to government funds and microcredit/microfinance, and examine the impact of social capital on women empowerment (Machio et al., 2020).

4. **Strategies and Prospects for Scaling Up and Institutionalization**

Based on the lessons learnt from the implementation of CBMS in Gikindu in 2018 and in Muthithi in 2016 in Murang’a County, the following are recommended:

1. CBMS is a very useful tool for collecting data at the local level and hence key for understanding people’s needs and making evidence based planning. The local planning office was able to see which population was most disadvantaged in different social indicators and where such were located and thus agreed to use the finding to reach out to such populations and to track them going forward. Other Counties in Kenya are encouraged to consider adopting the CBMS tool to aid them in better planning and program targeting. Since all counties make their annual plans, the data collection exercise can be budgeted for.

2. The tablet system for implementing a CBMS made the data collection process easy and accurate on a number of fronts. First, the data entry was immediate as the answers were recorded on the tablet. Second, the tablet form of the questionnaires was designed to skip questions that were not applicable for the respondent thus shortening the data collection duration and avoiding asking the respondents questions that were redundant. Third, the tablet form of the questionnaire was designed with coded possible answers to facilitate screening of allowable or relevant answers to a particular question. For example, questions answerable by a yes or no, were coded with 1 (for YES), and 2 (for NO). This helped avoid eliminate possibility of unwanted responses hence reducing measurement errors. Finally, the use of the tablet system for data collection helped save cost of manually printing questionnaires and to pay additional people to do data entry. When CBMS was pilot tested in 2016, tablets were rarely used for data collection but more recently many more researchers are using tablets to collect data.

3. Using local enumerators is cost efficient and makes data collection easier. Since enumerators come from the area, it is easier for them to move around because they understand the terrain. They were also conversant with local language and knew most of the people in the community.

4. Involvement of local officials is important in CBMS implementation. They not only
understand and appreciate the process making it easier for them to carry it on but also help mobilize and ensure locals participate in the process. It makes it easier also for them to accept and adopt the findings from the study. With CBMS they are expected to continue with the data collection and so involving them from the start to the end is key to the continuation of the cycles of data collection.
References


1. Context and Rationale for the Implementation of CBMS

1.1. Background

The implementation of a community-based monitoring system in Burundi draws from the objective to contribute to the implementation of a framework of community indicators that are essential for the preparation and the follow-up of the Plan Communal de Développement Communautaire (PCDC). More specifically, the pilot CBMS project in Burundi, initiated in 2018, aims to enable the collection of data at the community level through partners living in those communes particularly with engaging local authorities in the process of data collection and analysis of data. It also aims to develop a list of indicators to monitor the PCDC. Moreover, it intends to analyze and show through CBMS data the effects of cash transfers in rural areas especially for women.

The initial adoption of the CBMS methodology, in selected study sites in the country, takes into account the strategic directions in Burundi in terms of poverty reduction initiatives and for assessment of the sustainable development goals. After a decade of crisis in Burundi, the post-crisis period since 2005 has been marked by a peace-building effort and the implementation of development strategies. The 2005-2015 decade was marked by positive growth (on average 4%) but poverty levels remained high (64.6%) according to 2015 data. The second Strategic Framework for Growth and Fight Against Poverty (Cadre Stratégique de Croissance et de Lutte contre la Pauvreté, deuxième génération CSLP-II 2012-2015) is completed and yet the country does not currently have a reference framework for its development. The implementation of the CSLP-II gave rise to significant results in the area of human development notably in education with the implementation of free primary school, free health care for children under 5 and for women giving birth. However, the transformation of the economy desired during the development of the CSLP-II could not be achieved despite positive economic growth till 2014. Even if the unemployment rate seems low (2.1%) according to data from 2015, it comes with a rate of high under-employment of 50%. The current crisis that Burundi is experiencing again broke the pace of growth that began in the early 2000s (-3.9% in 2015 and 0.9% in 2016). The crisis has also been marked by the breakdown of several bilateral co-operations with a drastic drop in development aid.

Burundi, at the time of the proposed CBMS initiative by a group of local researchers from the CURDES, is preparing for the implementation of the new global guidelines and the post 2015 agenda given the sustainable development goals which have been launched by the Government in 2017. At the operational level, the country is also preparing the National Plan for development (2018-2027) which will also be accompanied by a set of programs to be implemented across the different provinces of Burundi. There were noted deficiencies in the national statistical system particularly to monitor national and disaggregated indicators for the assessment of the implementation of the SDGs. There was no follow-up mechanism to generate the poverty indicators at the community level. Poverty monitoring is done at irregular intervals and is highly dependent
on funding from international development partners including the World Bank and the African Development Bank. The provincial branches of the Institute of Statistics are not monitoring poverty at the province level such that data is only available at the national level and there is no disaggregation of data at sub-national level.

With regards to social protection, a national social protection strategy exists where interventions take the form of cash transfers. The World Bank is recently financing a project called 'Merankabandi' on a pilot basis which integrates several components of education directed towards women to contribute to the well-being of the family and the child. The project was launched in 2018.

Under this context and noted weaknesses of follow-up assessment at the community level, including the absence of monitoring of indicators of poverty and employment at regular intervals, despite decentralization, the CBMS approach is proposed to be implemented in Burundi. The implementation of the CBMS for monitoring the living conditions of households by putting a particular focus on poverty and employment conditions in rural areas is envisioned to bring an added value for policy design and development planning in Burundi in many ways.

The implementation of CBMS in the local context of Burundi, in general, aims to contribute to the implementation of a framework of community indicators that is essential for the preparation and monitoring of the Plan Communal de Développement Communautaire (PCDC). More specifically, the adoption of the CBMS will enable the collection of data at the community level with participation of communities and local authorities in the process of data collection and analysis of data and for monitoring the PCDC. With a set of poverty indicators that can be generated at the local level, the data is expected to help analyze the long term implications of cash transfers programs particularly those focusing in rural areas and women.

The CBMS adoption in Burundi also aims to bring value added to social and economic policies, particularly relating to implementing strategies for social protection and in the design of new safety nets programmes. The CBMS initiative intends to shed light on the importance of regular monitoring systems both at the national and sub-national level. The CBMS is proposed to be extended to other provinces in Burundi, be institutionalized and become an integral part of the local planning systems. Furthermore, the CBMS methodology is a strategic innovation for local capacity-building in the context of decentralization and a tool for transferring of skills in data collection and use at the community level.

1.2. Local Government Structure

The decentralization process in Burundi aims to provide greater local autonomy and empowerment of the communes. A law was enacted in 2015 to enable transfer of powers to the communes. A law of transfer of competencies for planning and program implementation to the communes was promulgated by the President of the Republic in 2015.
The communes have Plan Communal de Développement Communautaire (PCDC) containing all the programs that will be implemented. However, there is no existing monitoring mechanism to evaluate these PCDC. The transfer of powers to the communes would be pointless in the absence of capacity-building of the community personnel involved and the establishment of a proper monitoring and evaluation mechanism that can assess the impact of the programs at the community level. The craze to build local capacities in planning and monitoring at the community level exists and is supported by development partners including the UNICEF.

Table 1 below shows the planning structure in Burundi and the planning stage by which CBMS can be used.

<table>
<thead>
<tr>
<th>Levels of Planning</th>
<th>Planning document</th>
<th>Identified Potential use of CBMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Level</td>
<td>National Development Plan (2018-2027)</td>
<td>No opportunity yet</td>
</tr>
<tr>
<td>Sector Level</td>
<td>Sector strategy (Agriculture, Health, Education, Energy, water and sanitation, infrastructure etc.)</td>
<td>Opportunity to share and show CBMS data and map in sector strategy</td>
</tr>
<tr>
<td>Local Level</td>
<td>Community Communal Development Plans (PCDC)</td>
<td>Large opportunity for the implementation of local planning guidance</td>
</tr>
</tbody>
</table>

1.3. Review of Existing Monitoring Systems

Burundi’s monitoring and evaluation system is characterized by enormous fragmentation and difficulties in monitoring the achievement of certain human development indicators. There is no functional integrated evaluation and monitoring system allowing regular monitoring of sustainable development indicators. The National Development Plan (NDP 2018-2027) has been drawn up and sets growth targets of almost two figures by 2025. However, the monitoring and evaluation framework is not yet finalized. A survey to inform the levels of NDP indicators is being prepared with funding from the World Bank.

At macro level: The Institut de Statistiques et d’Etudes Economiques du Burundi (ISTEEBU) regularly publishes indicators to monitor the macroeconomic situation in the country. National account and inflation are regularly published. The other statistics are produced on an irregular frequency.

At micro level: Sustainable development indicators are monitored on an irregular basis and are based on surveys which are mostly funded by development partners. For monitoring poverty and all living conditions of households, this is based on the surveys carried out over a period of
approximately 10 years. The latest surveys on poverty and living conditions took place in 2006 and 2014 with funding from the World Bank and the African Development Bank respectively. The last survey on living conditions and the workforce in 2014 provided the level of indicators on all dimensions of well-being (poverty, health, employment, nutrition, social protection, education, and living conditions).

Significant differences exist between the sectors in terms of monitoring indicators of sustainable development. Only the health and education sectors have a good statistical monitoring system to inform a certain number of indicators of sustainable development. In the case of health, the system is decentralized until healthcare structures.

The monitoring system in Burundi is organized at two levels: (i) central level, and (ii) sector and decentralized level. At the central level, the monitoring system relies on the Institute of Statistics and Economic Studies of Burundi. This institute works in collaboration with sector ministries to monitor sector indicators such as health, education, agriculture, etc. The Statistics Institute has representations in all provinces working in collaboration with provincial planning offices. The work of this Institute relies on the collection of routine data from decentralized institutions in the fields of Education, Health, Agriculture, Justice etc. Decentralized structures at the local level are:

**Education**
- Provincial Directorate of Education: Province
- Communal Directorate of Education: Commune

**Health**
- Provincial Directorate of Health: Province
- Health District: Three communes

**Agriculture**
- Provincial Directorate of Agriculture

There is no mechanism for monitoring poverty at the community level. Poverty monitoring is done at irregular intervals on funding from development partners, including the World Bank and the African Development Bank. The provincial branches of the Institute of Statistics do not have a mechanism for monitoring poverty at the community level.

### 2. Key Features of CBMS in Burundi

The CBMS implemented in Burundi in 2018 aims to:

- Build the benchmark for the indicators of the SDGs at the community level: The
implementation of CBMS in the selected areas provides useful indicators in the monitoring of the SDG targets. Since the indicators are collected at community level, CBMS will lay the solid foundation for generating data for measuring and monitoring the SDGs at a more decentralized level. The monitoring system uses enumerators residing in the communes for collection of the data to minimize costs.

- Develop the capacity of the planning and monitoring staff at the community level: The process of decentralization and transfer of skills to the municipalities would be in vain in the absence of capacity-building of the local team involved in planning and monitoring. The implementation of CBMS will therefore strengthen the capacity of local actors and encourage them to plan the regular collection of data and monitoring of the SDG indicators. If proper capacity building is put in place, subsequent monitoring and evaluation of the indicators will be carried out more smoothly.

- Generate a list of indicators measuring the different dimensions of living conditions at the community level. This mapping of indicators is deemed essential in the process of development programs of the commune and essentially the collines which will be covered by the CBMS.

- Facilitate the evaluation of the long term effects of programs such as cash transfer on non-agricultural activities and on the situation of the rural women. The implementation of the CBMS is intended to help understand how interventions such as cash transfer can contribute to improving economic conditions in rural areas and their adequacy towards enhancing the living conditions particularly of Burundian woman. The CBMS data is also intended to further help analyze the constraints of doing a non-agricultural activity and the factors hindering the economic participation of women in rural areas taking the case of the study sites.

Aside from the local research team of CURDES, the key actors that were involved in the process of the pilot CBMS implementation in Burundi include:

- Ministry of Decentralization and Institutional Reform. This Ministry supervises the Commune Development Plan (PCDC) and their monitoring and evaluation. It is therefore an important factor in the process of building the capacity of the local planning and monitoring team.

- Administrators of Mabayi, Mugina, and Bugabira: Administrators played a key role throughout the process of the implementation of the project. They have the main responsibility of managing the local population, and have facilitated the recruitment process of enumerators, data collection in field. Moreover, they played a role in validation of the results at the community level in collaboration with the municipal advisors in charge of development. CBMS Indicators may further be considered in development of the PCDC and to monitor economic development at the community level.
• Enumerators from the community. The enumerators who were identified and hired to conduct the household census in the collines were from the study sites. Additionally, the light mothers in the hills (collines) were tapped to collect data on anthropometric measures for all the children under 5 years in selected collines.

2.1. Adjustment of CBMS Methodology to Burundi’s Context

2.1.1. Core Poverty Indicators

The CBMS implemented in Burundi generated 18 indicators to monitor living conditions across 5 dimensions of poverty. These dimensions include health and nutrition, education, income and food security, economic activity, and water and sanitation. The core indicators to be monitored by the CBMS in the context of Burundi are presented in Table 2.

Table 2: CBMS Core Indicators, Burundi, 2018

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Nutrition</td>
<td>Proportion of 0-4 years who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of Household with mosquito nets</td>
</tr>
<tr>
<td></td>
<td>Proportion of children under 5 years old with fever who did not receive anti-malarial drugs</td>
</tr>
<tr>
<td></td>
<td>Proportion of children under 5 years old malnourished/ underweight</td>
</tr>
<tr>
<td></td>
<td>Proportion of children under 5 years old malnourished (Wasting)</td>
</tr>
<tr>
<td></td>
<td>Proportion of children under 5 years old malnourished (Stunting)</td>
</tr>
<tr>
<td>Education</td>
<td>Adult literacy rate</td>
</tr>
<tr>
<td></td>
<td>Proportion of children age 6-12 not attending primary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children age 13-18 not attending secondary school</td>
</tr>
<tr>
<td>Income and Food Security</td>
<td>Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)</td>
</tr>
<tr>
<td></td>
<td>Proportion of population living below the national poverty line, by sex and age</td>
</tr>
<tr>
<td></td>
<td>Proportion of population living below food poverty line</td>
</tr>
<tr>
<td></td>
<td>Proportion of Household with Score of Food consumption (SCF) Poor Limit and Acceptable</td>
</tr>
<tr>
<td></td>
<td>Proportion of households who experienced food shortage</td>
</tr>
<tr>
<td>Economic Activity</td>
<td>Proportion of persons in the labor force who are unemployed</td>
</tr>
</tbody>
</table>
2.2. Data Collection

2.2.1. Data Collection Instruments

The data was collected through a census using three questionnaires: 1) a household questionnaire which was administered to the household heads or any adult member of the household; 2) a rider questionnaire on the thematic research study on cash transfer program and income generating activities and; 3) a community questionnaire administered to the chairperson of the colline.

The household questionnaire consisted of the following modules: household member roster, education, employment, child’s health, household characteristics, mosquito nets, food consumption, food security and deaths in the household. The rider questionnaire included questionnaires on beneficiaries of the Terintambwe program and the income generating activities of these beneficiaries. The community questionnaire collects demographic characteristics of the colline, service institutions and infrastructures such as health and education facility, agriculture facility and input dealers, public transport, road network, water supply, credit institutions, registered business firms & non-agricultural activities, energy facility and PPAs (Programs, Projects and Activities) that were implemented in the last year.

*Household Profile Questionnaire (HPQ)*

This questionnaire is administered to all households in the collines. It contains all the information related to the socioeconomic situation of households. The data from this form generates the indicators of living conditions and indicators for the sustainable development goals at the community level.

The questionnaire is administered to the household head or spouse. If the husband is absent, the income-related information can be completed later, in the presence of the latter who has more information on the household income. The household questionnaire also covers all the basic information about all household members.

The questionnaire is organized in modules to facilitate its administration. The sequence of questioning was developed in such a way as to closely follow the path of the respondents’ thought and to allow the enumerator to control the recording of the answers. The main modules of the questionnaire include:

1. Identification of the respondent
2. The list of household members
3. Education
4. Employment
5. Household income
6. Household characteristics
7. Mosquito nets
8. The health of the child
9. Anthropometric data
10. Household economic shocks
11. Mortality

A manual has been developed as a guide and reference for enumerators in administering questions to respondents. It contains information on the objectives of the survey, the organization of work, instructions for filling in the questionnaires and recommendations for the proper execution of all operations related to the survey. The manual aims to clarify the survey objectives and all the variables used in the questionnaire.

**Community questionnaire**

The questionnaire collects information on the availability of development support infrastructure in the community. These include basic infrastructures such as health care, roads, schools, water and sanitation facilities, banks, insurance, electricity, agricultural inputs and enterprises, public transport, and markets/place of commerce among others. The availability of efficient basic infrastructure is one of the prerequisites for the success of all actions aimed at improving the living conditions of the population and at reducing poverty thus the rationale for collection of these information. The questionnaire is administered by the enumerator to the Head of Administration (Chief or Head) at the colline level. The questionnaire also collects general information on the identity of the respondent as well as demographic and physical characteristics of the colline.

**Rider Questionnaire**

This questionnaire is administered, for purposes of the thematic research, to specifically identified individuals in the households that have non-farm activities in progress at the time of the survey. If more than one activity is identified in a given household, target respondents are the primary managers of these activities. The target respondent of the rider questionnaire is the adult member
who is the most knowledgeable on the income-generating activity/activities operated by the household. This may be the head, the spouse, or any other adult member.

The rider form has three sections that include Terintambwe program, income-generating activities (IGA), and economic shocks. For household beneficiaries of the Terintambwe program, the target respondent is the adult member who is the most knowledgeable about the income-generating activity-activities operated by the household. The income-generating activities is the largest section comprised of 34 questions.

The conduct of data collection benefitted from the implementation of the mobile application CBMS-Scan which incorporates geographic information system (GIS) coordinates. The questionnaires developed by the local research team were programmed by the CBMS Network Office into the CBMS Scan forms installed in Android Tablets. This is the first time that Android tablets were used in collecting household and individual information as well as geographic location of households (GPS coordinates) at the community level in Burundi.

Twenty eight (28) units of tablets (Android gadgets) were used in the data collection. The CBMS APP (Accelerated Poverty Profiling) tools, particularly the CBMS Scan and CBMS Portal, have been utilized to adopt a tablet system for gathering data. The questionnaires were administered through the tablets using CBMS Scan form and the data collected during the field census were sent to the CBMS Portal where the consolidated data can be accessed for processing.

The CBMS SCAN software was also useful for checking data quality, detecting possible input errors and performing consistency tests on all data collected. Verification and validation of data from each household interview were done at the end of each week of field data collection to allow enumerators to integrate anthropometric measurements particularly data on nutrition. After data validation, data were transmitted to the CBMS Portal.

2.2.2. Identification and Training of Enumerators

Enumerators for data collection were recruited from the census area and resided in the field during data collection. A 4-day training of supervisors and enumerators of two Provinces covered by the census on CBMS APP was conducted by the local CBMS research team of the University Research Center for Economic and Social Development (CURDES). A 2-day refresher training was also organized before the fieldwork.

The training for the enumerators and supervisors, conducted by the local CBMS research team included presentation and discussion of the objectives of the CBMS project and intended use of the data, the data collection methodology (CBMS methodology and use of CBMS Scan and Portal) and of the questionnaires (Household Profile Questionnaire (HPQ) and rider questionnaire and the Community Profile Questionnaire (CPQ)).
2.2.3. CBMS Census Area and Field Operations

The data collection was conducted in selected communities in two provinces (Kirundo and Cibitoke) for two months. In Kirundo province, Bugabira commune covered two collines (Gitwe and Gaturanda). In Cibitoke province, the CBMS has been implemented in two communes (Mabayi and Mugina). Two collines (Rushiha and Gakerekwa) have been covered in Mabayi commune and other two collines in Mugina (Butaramuka and Rushimabarimyi).

In Kirundo Province, data has been collected from 2,068 households. A total of 13 enumerators covered the households and worked for a period of 36 days. In Cibitoke province, the number of households covered is 2,771 households of which 731 are from the commune Mabayi and 2,040 from the commune Mugina with 15 enumerators working in field for 30 days. The daily quota per enumerator was fixed at 7 questionnaires per day. Two supervisors and two controllers (controller per province) were recruited to conduct field collection operations. A data quality assurance team, which consisted of three people and work in collaboration with the research team, was set up and were responsible for validating the data before sending to the CBMS Portal.

2.3. Data Processing

Two research members had access to the CBMS Portal and were able to download and monitor data sent during data collection in field. The research team made sure that the household identifications (IDs) were unique by renumbering non-unique IDs and deletion of multiple-sent data. STATA is the software used for analysis and data processing.

The CBMS census data collected from the study sites was processed using STATA to generate and analyze the SDG indicators. Poverty maps of selected indicators were also produced from the CBMS data to show the status and differences of indicators in the collines. Figure 1 and 2 shows an example of the poverty maps produced. The sample map shows CBMS data on households with at least 1 illiterate member (marked with red dots) in selected collines in Cibitoke and Kirundo.

Aside from processing poverty and SDG indicators, CBMS data generated from the CBMS census and rider survey was also processed data to answer the research questions identified for the study on the impact of a social protection program on poverty and the employment of women.
Figure 1: Proportion of households with access to electricity, Burundi, 2018

Source of basic data: CBMS Census, selected collines in Cibitoke and Kirundo, Burundi, 2018

Figure 2: Proportion of households with access to electricity, Butaramuka, Burundi, 2018

Source of basic data: CBMS Census, selected collines in Cibitoke and Kirundo, Burundi, 2018

During the validation workshop in the community, these poverty maps were recognized as the best tools to support the local planning process. The participants found the illustration of the maps as more informative. They recognized its great usefulness in prioritizing investments between hills during the development and prioritizing in Communal community development plans.
2.4. Data Validation

A one-day workshop on CBMS data validation organized and conducted by the local CBMS - Burundi research team. The activity is intended to validate the key findings from the CBMS census data that was collected in the three communes of the two Provinces (Bugabira in Kirundo, Mugina and Mabayi in Cibitoke). It also aims to ensure that the data collected depicts the reality of the situation faced by community members and better understand the reasons for the findings on the poverty (development) indicators where the study areas are faring well or lagging behind.

The data validation workshop brings together representatives from local governments, enumerators, community members, and key agencies such as the Ministry of Decentralization and Institutional Reform, and Concern Worldwide Burundi in each province. About 21 participants were convened, in case of Kirundo Province and while 20 participants attended in Cibitoke Province. The activity was attended by representatives of Governors of the Provinces, the Permanent Secretary of the Ministry of Decentralization and Institutional Reform, and representatives of CURDES and the local CBMS research team. The workshop provided a venue for participants to be oriented and discuss the report on the SDGs based on the CBMS data and findings of poverty situation in the sites in the two provinces with focus on the three communes (Bugabira in Kirundo, Mugina and Mabayi in Cibitoke) that have been covered by the CBMS census. Prior to presentation of results, participants were also provided with a background on the CBMS design and advantages of using CBMS in localizing the SDGs.

Participants of the community validation workshop appreciated the approach of sharing the results of field data collection and affirmed that the presentation of the CBMS results gave a true picture of the situation of households in the hills. Participants also appreciated the employment of local investigators during data collection. The results on comparisons of living conditions based on the CBMS data on the hills (collines) and the differences observed were also verified by the heads of the hills. A proposal to use the CBMS data to target beneficiaries for social protection programs especially for the elderly was discussed during the workshop.

The participants were also surprised at the presentation of the elderly in the hills but regretted that some of them had died at the time of the dissemination of the results.

There have been some discussions to extend the implementation of CBMS to cover all hills (collines) of the commune. The Ministry of Decentralization will take the lead in collaboration with CURDES in further discussion of possible expansion. After recognizing the achievements and challenges in the implementation of CBMS in the pilot sites in Burundi some recommendations were raised. First is to enhance the skills of the local planning entity to ensure the ownership of CBMS including CBMS design, methodology, software, statistics and map preparation. Another recommendation by the participants during the validation workshop is to increase the resources dedicated for data collection and processing at local level.
2.5. Database Management

Database management refers to the storage, modification, and extraction of information from a database to produce the desired outputs such as reports and maps. Data collected from the CBMS census are encoded and stored into the database system, the CBMS Portal. These results are used during the validation exercises to ensure accuracy of the data. If there are corrections in the data as a result of the validation exercise, the revised data are then incorporated in the database.

Because the data are disaggregated at the household level, the data are consolidated at the sub-colline and colline levels which can be shared to the local authorities. The CBMS database is intended to be accessible to local departments including the municipalities and provincial branches. At the central level, the database must be centralized and coordinated through the level of the Ministry permanent's secretariat.

3. Uses of CBMS Data

CBMS data can be used in the local planning process and especially during the development and monitoring of the Plan Communal de Développement Communautaire (PCDC). The new local planning guide requires an in-depth analysis of the situation of the municipality and the CBMS tools to generate disaggregated data at the household and individual and community/colline level is useful at this key stage of local planning.

The CBMS data on the SDGs also facilitates the integration of the SDG in the communal community plans constitutes another opportunity for the localization of the SDGs in the hills (collines). The CBMS, pilot tested in the study areas, has generated 19 local level indicators across 9 of the SDGs (Table 3). The CBMS-SDG data was used for the preparation of a local SDG report of the communes that shows and analyze the status of the SDG indicators at the colline level. Aside from showing the status of poverty of the collines in specific dimensions, CBMS data was also used to compute for a multidimensional poverty index (MPI) of the study areas.

Table 3: CBMS-SDG Indicators, Burundi, 2018

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>3</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of multi-dimensionally poor households</td>
</tr>
<tr>
<td>Goal 2 – Zero Hunger</td>
<td>3</td>
<td>Proportion of households with Score of Food consumption: Poor Limit and Acceptable</td>
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<tr>
<td>---------------------</td>
<td>---</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of households who experienced food shortage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of underweight, stunted, and wasted children</td>
</tr>
<tr>
<td>Goal 3 – Good Health</td>
<td>2</td>
<td>Proportion of children less than 5 years old who died</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of women who died due to pregnancy-related causes</td>
</tr>
<tr>
<td>Goal 4 – Quality Education</td>
<td>4</td>
<td>Adult literacy rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gross primary/secondary enrollment rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of schools with access to safe drinking water and sanitary toilets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population with information and communications technology (ICT) skills</td>
</tr>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>2</td>
<td>Proportion of households with an unimproved water source and with distance to water source being greater than 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of households with an unimproved toilet source and households sharing toilet facilities with other households</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>1</td>
<td>Proportion of households with access to electricity</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>2</td>
<td>Unemployment rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of children aged 5-14 years old who are part of the labor force</td>
</tr>
<tr>
<td>Goal 9 – Industry, Innovation and Infrastructure</td>
<td>1</td>
<td>Proportion of households who own mobile phones</td>
</tr>
<tr>
<td>Goal 10 – Reduced Inequalities</td>
<td>1</td>
<td>Proportion of people living below 50 percent of median income</td>
</tr>
</tbody>
</table>

The use of CBMS poverty maps, in the local SDG report, is found to be a good tool to shed light on
the prioritization process for investments in the hills (collines).

Moreover, CBMS data is also helpful for studying the impact of a social protection program on poverty and the employment of women. For example, data from the CBMS sites was used to identify and analyze the effect at the commune level of a cash transfer program (the Terintambwe program) that was implemented in Burundi between April 2013 and April 2015 on rural non-agricultural income generation taking the case of selected collines in Cibitoke and Kirundo.

Overall, in terms of contributions to the social and economic policies, the implementation of the CBMS brings its value added at the level of the generation of necessary data for the implementation of social protection policies and strategies. The results of the implementation of the CBMS would drive the design of new safety nets programmes and also sheds light on the importance of regular monitoring both at the national and sub-national level. The CBMS can be extended to other provinces, be more institutionalized and be an integral part of the local planning systems. Furthermore, the CBMS is a strategic innovation tool for local capacity-building in the context of decentralization and transfer of skills to the community level.
References


Togo

1. Context and Rationale for the Implementation of CBMS

1.1. Background

The development of a community-based monitoring system in Togo stemmed from a research study by Atake et al. (2016a) that aim to address the unavailability of local level data to examine research questions for providing social protection for informal sector workers, and the absence of disaggregated data for the preparation of local development plans. The pilot implementation of the CBMS methodology, designed in the context of Togo by a group of local researchers from the University of Togo, was done in selected sites in Lome. The CBMS generated data and indicators at the canton and village level on the different dimensions of poverty that are deemed useful for decision-makers and authorities concerned with providing social protection, particularly the case of Caisse Nationale de la Sécurité Sociale (CNSS) Social Protection, for informal sector workers. In 2018, the CBMS was implemented in selected sites in Danyi and Tsévié particularly to generate local level data to monitor the sustainable development goals (SDGs), and to examine research questions relating to gender disparities in agricultural investments, labor productivity and rural poverty reduction (Atake et al., 2020).

The last Core Welfare Indicators Questionnaire in Togo (QUIBB) took place in 2015 and involved a household sample across the entire territory. On the other, the CBMS generates data that covers all households in the targeted zones and sites which makes it possible to better identify the needs of the populations of these areas. CBMS data enables the development of appropriate policies for local communities to achieve development objectives. The availability of CBMS data from the same sites overtime also makes it possible to monitor the household’s socioeconomic conditions improvement. CBMS provides the needed data for poverty and SDG profiling at the local level, analyze poverty and SDG indicators across gender and other related households and individual characteristics i.e. sub-locations, and sectors of employment among others.

Rural poverty reduction remains a major challenge in Togo. Despite the substantial reduction in Togo’ incidence of poverty which decreased from 61.7% in 2006 to 55.1% in 2015, it has not sufficiently favored poor households (INSEED, 2016). It was noticed the persistence of poverty in rural areas, with a large disparity compared to urban areas. In 2015, the incidence of poverty was 68.9% in rural areas while it was 37.8% in urban areas (INSEED, 2016). In 2015, only 16.2% of rural households had access to electricity, while this rate was 90.3% and 76.9% respectively in Lomé the capital city and in other urban areas. An analysis by place of residence shows that in rural areas more than seven out of ten households were poor (73.9%) (INSEED, 2016). Thereby, it follows that despite the government’s endeavor to improve Togolese’s wellbeing, results have not met expectations yet, especially for rural population mainly agricultural. The predominantly agricultural rural population remains the poorest group, among the socioeconomic groups (PNUD-Togo, 2011).
Of the 531,068 rural households counted during the fourth National Census of Agriculture in 2011, 95.8% were agricultural, against 4.2% non-agricultural (MAEP, 2013). The agricultural sector contributes about 38% to the real GDP against 23% and 36%, respectively for secondary and tertiary sectors (FAO, 2012). It employs 40.7% of the total labor force (FAO, 2012). Despite this significant contribution to the country's economic growth, analysis of the incidence of poverty by socioeconomic group of household head showed that in 2015, poverty was higher among households headed by independent farmers (INSEED, 2016). The incidence of poverty of agricultural households was 72.6%, in 2015 (INSEED, 2016). Additionally, the fourth National Census of Agriculture showed a low consumption of inputs especially improved seeds. Agricultural credit increased by 13% over the period 1996-2012. The credit requested by a farm household during the 2012/13 crop year hardly exceed 31,460 FCFA; this explains the private sector low level of investment and the low consumption of agricultural inputs in this sector. The results of the National Census of Agriculture suggest that almost 95% of plot holders are not directly monitored. The weak proportion of monitored farmers certainly benefits these. However, the level of monitoring and poverty could judiciously account for the persistence of the high proportion of traditional seed consumption. An in-depth investigation on the issue would help a lot. Additionally, a significant increase in monitored farmers will likely have positive effects on productivity. An increase in productivity would be the ideal solution to reduce rural poverty.

Indeed, impact of agriculture on poverty reduction depends on the interaction of several effects. Firstly, the direct effect of the agricultural sector growth is to improve income of employees in that sector (Grewal et al., 2012). Secondly, active participation of poor population in agricultural sector would depend on the extent of benefits they obtain from the growth of that sector (Grewal et al., 2012). Poverty reduction in vulnerable agricultural populations would depend on the types of agricultural investments made, incentives for participation in agricultural activity, and the distribution of agricultural income.

Furthermore, it should be emphasized that Togolese rural population is characterized by a predominance of female population representing respectively 51.2% of rural population; 51.1% of agricultural population and 54.2% of non-agricultural population (MAEP, 2013). Women access to land, credit, education and technology could boost their productivity, and then enhance growth and social welfare (FAO, 2011). Increasing women's access to agricultural inputs could significantly reduce hunger and malnutrition (FAO, 2011). The exclusion of women from access to and control over assets, whether land, technology or credit potentially lowers growth (Rao, 2008; Kelkar, 2011).

The latest agricultural census in Togo which took place in 2011 has permitted to collect data on agricultural households such as socio-demographic characteristics, characteristics of plots, cultivated surfaces, means of production, characteristics of animal rearing, etc. Said census has enabled inventory and diagnosis of the agricultural sector, but data does not allow analysis poverty of farm and non-farm households in all its dimensions. There are no available disaggregated data on poverty of farm households in all its dimensions in Togo. The available data cannot provide a complete picture of rural poverty relating to agricultural productivity. Local authorities therefore
do not have information about farm household composition, health, education, employment, nutrition, housing characteristics, land tenure, ownership of durable goods, access to basic infrastructure, spending (food and non-food), consumption, farm worker's vulnerability, and farm and non-farm income, etc. This lack of data on farm employment and farm worker's vulnerability, which represents the vast majority of the active population, does not therefore allow local authorities to develop appropriate local development plans.

Implementation of the second phase of CBMS in Togo aims to collect local level data relating to poverty, land tenure, gender, employment, environment, finance, social protection, etc. from rural farm and non-farm households in order to assist policy makers in rural poverty reduction. Setting up of the second phase of CBMS specifically aims to (i) generate current data and fill information gaps, (ii) develop poverty/SDG profiles (poverty map) for selected sites, (ii) propose pro-poor agricultural growth strategies that can be integrated into local development plans.

In addition, this study also aims to analyze using CBMS data the effect of agricultural investments on agricultural productivity and rural poverty reduction in order to suggest strategies for a pro-poor agricultural growth. This study intends to fill information gaps for diagnosing the extent of rural poverty, determining the causes of rural poverty, formulating policies in favor of rural farm households, and assessing impact of agricultural investments on rural poverty reduction. It is intended to promote evidence-based decision-making.

In particular, the expansion of CBMS initiative in 201_ intends to enlighten policy makers about the extent of disparities between men and women in agricultural investments, productivity and living standards.

1.2. Local Government Structure

Decentralization in Togo started in 1992 by virtue of the Constitution of 1992. A law on decentralization was enacted in 1998 and was amended in 2007. Local government in Togo is composed of six regions, 30 prefectures, and 354 municipalities (21 urban and 333 rural) (OECD/UCLG, 2016). The regions (headed by governors) are divided into prefectures (headed by prefects) which are then further divided into municipalities (headed by municipal councils and mayors). Each municipality is composed of one or more cantons (headed by chefs de canton) which are divided into quartiers (headed by chefs de quartier). Since 2007, urban municipalities are responsible for the management of internal budget, provision of basic services, and administration of tax and are mandated to implement programs on housing, safe and accessible water, waste management, public safety, public transportation, basic education, and healthcare, among others.

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1.3. Review of Existing Monitoring Systems

In the interest of ensuring that the Poverty Reduction Strategy Paper (PRSP) is monitored in a consistent fashion in Togo, various stakeholders had merged their efforts around a PRSP monitoring and evaluation information system. The stakeholders have five essential roles: (i) production of data and information; (ii) analysis of results derived from this data and information; (iii) maintenance of databases and survey databases; (iv) dissemination of analyses in the form of reports; and (v) system-wide coordination.

The PRSP monitoring and evaluation information system aims to: (i) systematically produce basic indicators and/or information for monitoring PRSP operations and achieving the MDGs; (ii) produce information for monitoring poverty reduction programs and projects; (iii) produce information for assessment of the impact of policies, programs, and projects; and (iv) produce regionally and locally disaggregated information.

The information system for monitoring and evaluating the PRS and MDGs/SDGs is partly based on sectoral information systems that already exist, particularly in the areas of health care, education, HIV/AIDS, finance, and rural development. The system consists of three components, or sub-systems, which complement each other and are thoroughly interlinked. These include: (i) Sub-system for “Monitoring of Household Living Conditions”; (ii) Subsystem for “Monitoring of Programs and Projects”; and (iii) Subsystem for “Impact Assessment”.

**Sub-system for “Monitoring of Household Living Conditions”**

The purpose of this sub-system is to systematically produce and manage indicators concerning household living conditions and/or basic information for assessing poverty and for monitoring the PRSP and MDGs/SDGs. These are essentially the results indicators or global impact indicators based on the “monetary poverty,” “basic needs poverty,” “capacity or opportunity poverty,” and “social exclusion poverty” approaches. These indicators are regularly updated on the basis of national accounts, statistical surveys, and administrative statements. The system is under the authority of the Permanent Technical Secretariat of the PRSP (PTS-PRSP), with the Directorate General of Statistics and National Accounts (DGSCN) handling technical coordination.

**Sub-system for “Monitoring of Programs and Projects”**

The purpose of this sub-system is to monitor the financial and physical execution of poverty reduction programs and projects. Its indicators involve inputs and outputs. Input monitoring refers to the monitoring of the level of financial resources allocated to programs and projects. It also includes the monitoring of available human and physical resources. Monitoring of outputs generated by the implementation of project and program activities refers to the monitoring of the output of poverty-reducing services (e.g. construction of schools, health centers, hydraulic
infrastructures, roads, etc.). This monitoring helps determine the existence and status of investments planned under poverty reduction programs and projects. Most of the data required for this purpose is derived from the administrative files of program and project agencies, and from the internal statistics of the supervisory ministries. In order to function properly, this sub-system requires the establishment of Medium-Term Expenditure Frameworks (MTEFs) as frameworks for budget planning and execution.

Technical coordination is handled by the Plan Execution Oversight Directorate in collaboration with the Directorate General of Budget (including the department responsible for program and project preparation).

**Sub-system for “Impact Assessment”**

Impact assessment makes it possible to identify those changes in the wellbeing of individuals in a specific population group that can be ascribed to a particular program or policy. Impact assessment involves studies of a specific project, program, or policy and of a well-defined population. The results of these assessments are used to guide decisions regarding the expansion, modification, or elimination of a given policy, program, or project, and to rank public interventions by order of priority. It is a tool to aid decision-making, and also has the advantage of enhancing the visibility of programs vis-à-vis the population as a whole. This final sub-system is under the technical coordination of the Directorate of Economy (DE).

**On Improved production and dissemination of statistical information**

The Togolese statistics system is a deconcentrated system in which the focal point of all statistics activities is Direction Générale de la Statistique et de la Comptabilité Nationale (DGSCN). The system is characterized by the absence of a statistics coordinating body and the absence of a statistics law to regulate statistics activities. In recognition of the basic role of statistics in development and poverty reduction strategies, and in order to revitalize the national statistics system, the Government formulated a National Statistics Development Strategy (SNDS), which was validated on December 2, 2008. DGSCN, as the focal point of all statistics activities, is responsible, in partnership with PTS, the SCs, the CRSPs, and the CLSPs, for ensuring that the necessary information is produced for monitoring and evaluation of the F-PRS. At regular intervals, DGSCN is responsible for carrying out major statistical operations such as the general census of the population and housing at 2010, the demographic and health survey, the zero-prevalence survey, the budget-consumption survey, the MICS survey, and the agricultural surveys. DGSCN works in coordination with the international development agencies involved in the statistics sector and search technical, material, and financial support with a view to improving the quality of the data produced.
The DGSCN ensures the dissemination of the quantitative data necessary for monitoring and evaluation of the poverty reduction strategy by making use of appropriate channels, particularly the PRSP website and Togo Info. It also intends to publish analyses of poverty in Togo on a regular basis.

The DGSCN is also responsible for the creation of a data bank of databases from these surveys, which will be used to generate the poverty indicators. In addition, DGSCN is charged with coordinating data collection by entities that produce sectoral statistics, especially the planning and programming directorates in the various ministries.

Based on the review of the existing monitoring systems, data on the informal sector are unavailable (Atake et al., 2016a). Furthermore, disaggregated data are not available at the local (villages and canton) level. The lack of these data makes it difficult for to prepare local development plans. It is in this context why CBMS is needed. CBMS implementation aims to generate and make available these data for the preparation of local development plans of the locality.

### 2. Key Features of CBMS in Togo

The development and implementation of the community based monitoring system, in the context of Togo, generally aims to have data at the village and canton level for the preparation of local development plans. The CBMS indicators and the disaggregated data generated by CBMS are intended to be used for monitoring poverty, analyzing development conditions of population and communes given different characteristics, and for developing policies such those relating to providing social protection, and addressing issues on rural poverty.

Taking off from the initial CBMS design in 2016 (Atake et al., 2016a), CBMS indicators were further developed during the expansion phase of CBMS in Togo in 201__ particularly to monitor SDG indicators that were not captured in earlier version of the CBMS questionnaire. A rider questionnaire was also developed to further examine issues on gender disparities in labor productivity and rural poverty.

Aside from the local research team from CERFEG, the key actors for the implementation of CBMS in selected sites in Togo include representatives from Ministry of Agriculture, Livestock and Water, Ministry of Health and Social protection, Ministry of Development, Crafts, Youth and Youth Employment, NGO: “Women, Democracy and Development”, DOSI: Delegation to the Informal Sector Organization, Village Development Committee, Women’s organizations in selected areas, and the town halls of the selected areas who were made part of the local CBMS steering committee. The local research team were in charge of the development of the questionnaires and indicators in local context, and preparation of local training materials, conduct of local training, and the processing and analysis of data and report preparation.
2.1. Adjustment of CBMS Methodology to Togo’s Context

2.1.1. Core Poverty Indicators

The CBMS in Togo monitors poverty in 5 dimensions covering health, education, income and employment, water and sanitation, and housing and assets. Poverty is measured using 20 indicators (at the household or individual level) across the 5 dimensions as shown in Table 1.

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Proportion of women aged 15-49 who have consulted a health professional at least once during pregnancy</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons consulting a health center in case of sickness</td>
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<tr>
<td></td>
<td>Proportion of children under 5 years old who died</td>
</tr>
<tr>
<td></td>
<td>Proportion of women who died due to pregnancy related causes</td>
</tr>
<tr>
<td></td>
<td>Proportion of household who did less than 5 km to access of health center</td>
</tr>
<tr>
<td>Education</td>
<td>Proportion of persons aged 15 and above unable to write and read</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 6-11 years old who have not reached at least elementary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 12-15 years old who have not reached at least secondary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 6-15 years old who are not attending school</td>
</tr>
<tr>
<td>Income and Employment</td>
<td>Proportion of households with income below the rural poverty threshold</td>
</tr>
<tr>
<td></td>
<td>Proportion of male (female) in the labor force who are unemployed</td>
</tr>
<tr>
<td></td>
<td>Proportion of male (female) who are underemployed</td>
</tr>
<tr>
<td></td>
<td>Proportion of households engaged in farm sector</td>
</tr>
<tr>
<td></td>
<td>Proportion of households engaged in non-farm sector</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>Proportion of households who have access to public water supply</td>
</tr>
</tbody>
</table>
Comparing to the CBMS Design Paper from PAGE 1 (Atake et al., 2016a), indicators were further developed in 2017-2018 to monitor SDG indicators that were not captured in earlier version of the CBMS questionnaire.

### 2.2. Data Collection

#### 2.2.1. Data Collection Instruments

Three questionnaires were administered: the household questionnaire, rider questionnaire, and community level questionnaire. The household questionnaire covers all the basic information on all household members. This basic information includes demography, access to health care, access to safe water, description of households, poverty level, and education, etc.

The rider questionnaire is intended to cover additional information especially on agriculture investments, farm labor productivity, farm outputs, and farm worker's vulnerability, among others.

The community level questionnaire is designed to complement and capture additional information such as available education facilities, industries, employment programs and credit institutions in the area.

Tablets, installed with the CBMS Scan software, and the CBMS Portal were used during the conduct of data collection. This method, adopted as part of the implementation of the community based monitoring system in the project sites, facilitated data collection and data processing (particularly encoding) and online transmission of information collected from the census sites to a data portal. The project adopted a Computer-Assisted Personal Interview (CAPI). The type of CAPI we have adopted is the CBMS Accelerated Poverty Profiling (APP) System. For this purpose, the questionnaires were programmed on the tablets using the CBMS SCAN form. A CBMS data collection manual was developed by the CBMS-Togo Project Team for the training of local enumerators on the implementation of the CBMS census in the project sites.
A pilot survey was conducted with collection agents and supervisors to correct the collection tools. The pre-test which was done in advance, to determine how many households could have been surveyed daily and therefore the number of required enumerators for the survey. It should be noted that after the pre-test, the questionnaire was transformed into a tablet-form using the CBMS APP-SCAN software and installed into the tablet deployed for the CBMS census and rider survey operations in the project sites. Data gathered from the field census was managed through the use of the CBMS Portal.

### 2.2.2. Identification and Training of Enumerators

Data collection is carried out by trained local enumerators. Enumerators selected have at least a Baccalaureate degree and are from the census sites. The enumerators are selected on the basis of their level of education, experience and knowledge of the study areas. Before proceeding with the data collection, the enumerators were trained on the different tools for the data collection process. The local training is a key phase in the implementation of CBMS. It determines the quality of data collected from rural households.

The training workshop for the enumerators covered discussions on the objectives of the CBMS study and the definition of the different concepts, the planned survey techniques and tools for data collection and their use, presentation and discussion of the questionnaires and the use of digital data collection system using tablets the CBMS APP tools, taking GPS coordinates, checking completed forms, finalizing forms and sending data to the server.

### 2.2.3. Study Area and Field Operations

The CBMS was implemented in Danyi and Tsévié in Togo. The Prefecture of Danyi has five townships. The township of Danyi-Atigba-Elavagnon is selected as a pilot site. Data were collected from 1,949 households. Danyi-Atigba-Elavagnon is essentially agricultural. The population lives on cash crops (coffee, cocoa), food crops (maize, cassava, taro, rice, beans, etc.), rearing, etc. There is also big forest (mahogany, wawas, irokos).

The second chosen pilot site is located in Maritime region. These are rural localities named Dalavé and Gblainvié of Tsévié. A number of reasons justify this choice. The first phase of CBMS project entitled “Willingness to Pay of the Togolese Informal Sector Workers for Access to the Social Protection: The Case Study of the CNSS Social Protection” implemented in Togo held in these two localities of Tsévié. Including the rural site in the previous phase allows creation of panel data analysis. It would be especially useful to the rural community of Tsévié because they will know the changes in the poverty indicators in their area. This would benefit them especially if they have pro-poor programs and would want to know the impacts of these programs. This would also be a good strategy towards institutionalizing the CBMS in that particular locality. In Dalavé and Gblainvié (Tsévié), 2,555 households were covered by the CBMS census in 2018.
In order to ensure a good coordination of the process, a team composed of a CBMS team member from CERFEG, a coordinator, supervisors, and controllers is established. The coordinator and supervisors provide all field facilities, including transportation, housing, consultation with local authorities and deployment of enumerators in each village. Controllers provide a link between coordinator and enumerators. They assist the coordinator and supervisors in the field, also verify the information collected by the enumerators and correct any errors identified before sending the data to the server. In addition, the township and village heads have assigned resource persons in each locality to guide enumerators in order to facilitate their reception by the households.

In all, data were collected from 4,543 households of which 1,949 in the township of Danyi-Atigba Elavagnon and 2,594 households in Dalavé and Gblainvié. After the data collection in the field by trained local enumerators, data are checked by assigned editors for validation before transmitting to the CBMS Portal. This procedure ensures that there is a reliable database to download from the CBMS Portal.

2.3. Data Processing

The data collected from the CBMS sites are downloaded from the CBMS portal and are processed through the use Stata software. Data cleaning (checking of duplicate data entries) was done in Stata and any inconsistencies identified and corrected during the data checking were incorporated into the database.

Local level statistics that were processed include calculations of basic poverty indicators and SDG indicators with their relevant disaggregation i.e. age, sub-location, and others, Poverty maps, such as that shown in Figure 1, are also generated using CBMS-QGIS software. The results are compiled in a report presented at a validation workshop.
2.4. Data Validation

The data validation process was conducted after data processing and analysis. Field validation involves presenting the processed data from the census to the community members in organized meetings or workshops to elicit their reaction on the accuracy of the data, and to gather feedback on the possible explanations for specific outcomes of the census. This community validation is a vital component of the implementation of a CBMS. For one, it is an important mechanism to ensure that the local leaders and the rest of the community are informed of the results of the census. It also provides an avenue for verifying the accuracy of the census findings by facilitating discussion on the possible reasons for the said findings. The census results are presented in table and CBMS poverty map forms to be validated by the community during the workshop. This validation exercise also serves as venue for identifying the major problem areas of the community and identifying the possible interventions needed to resolve these problems. This mechanism facilitates the integration of CBMS results in the preparation of the community’s annual development plan and in the drafting of a socioeconomic profile.
2.5. Database Management

Database management refers to the storage, modification, and extraction of information from a database to produce the desired outputs such as reports, maps, and proportions. The CBMS has been developed and consists of modules on data collection, encoding, processing, digitizing, and poverty mapping. The CBMS uses all freeware such as QGIS among others. Data collected from the CBMS census are automatically encoded with the tablet-system using the CBMS Scan software and stored into the online database system (CBMS Portal).

For the implementation of CBMS in the pilot areas, the database is maintained by the local research team of CERFEG. In the long-run, the staff of the local planning and development offices are expected to manage and updating their local database. For monitoring of rural poverty indicators, it is proposed that the CBMS data will be updated, after every 3 years.

The CBMS-Togo Team of CERFEG, in coordination with the Ministry of Agriculture of Togo, Ministry of Decentralization and Local Communities, municipalities, National Institute of Statistics of Togo and National Planning Department, is responsible for maintaining and updating the CBMS database in Togo. Partnership agreements can be established with the CBMS International Network Office to benefit from further capacity building in the use of the CBMS methodology and APP tools. In addition, partnerships with international institutions such as UNDP, the World Bank and the African Development Bank can make possible the mobilization of the necessary financial resources for the generation and updating of CBMS data.

Other target users of data are the new Local Officials, and external researchers which will have free access to data upon request addressed to the CBMS Togo Team of University of Lome (CERFEG) and based on the relevance of the study which shall be carried out and subject to data confidentiality and research ethics agreement.

3. Uses of CBMS

Poverty Profiling

The implementation of the CBMS in selected sites in Togo has generated the necessary local level statistics of poverty that made it possible to identify and analyze poverty at the local level and make recommendations to address the scale of problems in rural areas since there has been no general census since 2010. A CBMS study was implemented in the localities of Tokoin-Wuiti (urban) and Tsévié (rural) in 2015. The study used a set of CBMS indicators focusing on health, education, water and sanitation, housing, employment, and income. Using data collected from 7,436 households, Atake et al. (2016b) were able to (i) identify different aspects of poverty in the localities, (ii) create poverty maps showing the severity of poverty and which areas need to be prioritized, and (iii) provide recommendations to local officials in terms of promoting certain public policies and mobilizing financial resources in specific sectors.
Providing Social Protection to Informal Sector Workers

CBMS can also be used for producing data requirements to examine policy issues relating to the provision of social protection for informal sector workers, as illustrated in the study conducted by Atake et al. (2017). Prior to this study, due to the lack of data, it was difficult for local authorities to design and implement local development plans addressing the vulnerability of and the lack of access to basic services of workers in the informal sector (especially of women and children). The results revealed that informal workers comprised around 88.5 percent of the workers in urban Tokoin Wuiti and 93.3 percent of the workers in rural Tsévié. Using CBMS data, Atake et al. (2017) found that investment in social protection for informal workers, especially in rural areas, will be a necessary and primary component of ensuring inclusive economic growth as a sustainable way to break the cycle of poverty.

SDG Monitoring

Moreover, CBMS was able to produce the data needed to examine the development status of the sites in terms of the SDGs. Indicators generated are shown in Table 2. CBMS implementation in Togo was able to generate 29 indicators across 10 SDGs that can be monitored at the local level. CBMS data was also used to generate a multidimensional poverty index at the community level. These indicators are presented and analyzed in a local SDG report (Atake et al., 2018) prepared for the CBMS sites in Danyi and Tsévié in 2018.

Table 2: CBMS-SDG Indicators, Togo, 2018

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1 – No Poverty</td>
<td>7</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national/rural poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population covered by social protection floors/systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living in households with access to basic services</td>
</tr>
<tr>
<td>Goal</td>
<td>Objective</td>
<td>Indicators</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Goal 2 – Zero Hunger</strong></td>
<td></td>
<td>Proportion of the total adult population who have secure land rights and legally authenticated documents and who consider their land rights secure</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Food insecurity for under five and people over 15 years</td>
</tr>
<tr>
<td><strong>Goal 3 – Good Health</strong></td>
<td></td>
<td>Number of pregnancy-related deaths</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Number of child deaths</td>
</tr>
<tr>
<td><strong>Goal 4 – Quality Education</strong></td>
<td></td>
<td>Proportion of children who have completed primary school</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Proportion of children who have completed secondary school</td>
</tr>
<tr>
<td><strong>Goal 5 – Gender Equality</strong></td>
<td></td>
<td>Proportion of women aged 20-24 years who were married or in a union before age 15 and before age 18</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Proportion of individuals who own a mobile telephone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allotted time to housework and maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability to make a decision in sexual and reproduction rights</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The overall agricultural population having a warranted land property</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The proportion of women among those owning agricultural lands</td>
</tr>
<tr>
<td><strong>Goal 6 – Clean Water and Sanitation</strong></td>
<td></td>
<td>Proportion of population using safely managed drinking water services</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water</td>
</tr>
<tr>
<td><strong>Goal 7 – Affordable and Clean Energy</strong></td>
<td></td>
<td>Proportion of households with access to electricity</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Unemployment rate</td>
</tr>
<tr>
<td><strong>Goal 8 – Decent Work and Economic Growth</strong></td>
<td></td>
<td>Underemployment rate</td>
</tr>
</tbody>
</table>
Proportion of youth (aged 15-24 years) not in education, employment or training

Proportion and number of children aged 5-17 years engaged in child labor

Goal 10 – Reduced Inequalities

1

Proportion of people living below 50 percent of median income

Goal 16 – Peace, Justice and Strong Institutions

2

Proportion of population subjected to physical, psychological or sexual violence in the previous 12 months

Proportion of children under 5 years of age whose births have been registered with a civil authority

**Examining Gender Disparities in Agriculture**

Research on poverty reduction and agricultural investments was also facilitated with the CBMS database established. Atake et al. (2020) assessed the impact of agricultural investments on labor productivity and poverty reduction in rural areas in Togo using the data collected from 4,543 households in the townships of Dalavé, Gblainvié, Atigba, and Elavagnon. Among the gender-specific issues noted include the significant gap observed regarding (i) female farmers (41.9%) and male farmers (15.1%) with no educational background and (ii) female farmers (82.6%) and male farmers (72.3%) who earned an average monthly income below the guaranteed minimum wage. The outputs of the said CBMS research study specifically aims to serve as input for decision-making by authorities concerning investment in agricultural and pro-poor agricultural growth strategies. The CBMS database could also be used by other people who would be interested in the issues tackled by data.
References


Uganda

1. Context and Rationale for the Implementation of CBMS

1.1. Background

The High Level Panel (HLP) on the Post-2015 Sustainable Development Agenda called for a ‘Data Revolution’ (DR) to underpin transformational shifts for attaining sustainable development. According to the United Nations, the Data Revolution is designed to support “transformative actions needed to respond to the demands of a complex development agenda” including National Development Plans (NDPs) and Sustainable Development Goals (SDGs) among others. These actions focus on “improvements in how data is produced and used; closing data gaps; building capacity and data literacy in ‘small data’ and ‘big data’ analytics; modernizing systems of data collection; liberating data to promote transparency and accountability; and developing new targets and indicators.” The data revolution calls for ensuring that good data are produced and used across society, and the establishment of a culture of evidence-based policy, planning, decision-making, accountability, monitoring, evaluation and reporting on development results.

In order to design and make informed policies and decisions, there is a need to collect and process real-time data. This would facilitate drawing of specific policy recommendations intended for various sections of the population that fit in the national poverty reduction agenda and ensure sustainability of as well as cause effective coordination of programs to address the needs of special interest groups. The initiative to implement community-based monitoring system (CBMS) in Uganda stemmed from the need to collect and process real-time data with special focus on youths and other special interest groups to design and make informed policies and decisions particularly relating to youth unemployment and entrepreneurship. In 2016, the CBMS methodology was pilot tested in selected sites in Uganda under the research initiative of the Development Research and Training (DRT) with the support of the Community Based Monitoring System (CBMS) Network Office through a research grant from the Partnership for Economic Policy (PEP) funded by the IDRC-Canada and UK DFID. Specifically, the project aimed to show how CBMS can be a cost effective way of providing local governments with up to date data to guide planning and service delivery. The data is aimed at enabling community leaders from government, business, and non-profit organizations to plan more effectively and prioritize programs. The information generated with the implementation of CBMS enriched the understanding on the coping strategies employed by the youths when they are unemployed. The research findings informed policies on youths, the planning processes at the various levels and also enabled the villages to create registers for their households. The creation of village registers responds to a call from the decentralized governments for disaggregated data/information up to the lowest level of planning (village).

In 2018, CBMS was implemented in 2 additional sites in Katakwi subcounty of Katakwi district in Northeastern Uganda, under a second phase of PEP grant to DRT. The objective of the second phase is to fill in data gaps for a better understanding and analysis of factors affecting financial inclusion
among households and of household decisions to invest and save. Such information was deemed vital to inform the planning process at both local and national level. The data was intended to enable individuals, community leaders, businessmen, and non-profit organizations to plan more effectively with up-to-date real-time data.

The CBMS implementation in Uganda also pilot tested the use of the CBMS Accelerated Poverty Profiling (APP) which entails the use of a tablet based data collection system in the process of generating local level data. It was the first tablet based system of community-based data collection in Uganda.

1.2. Local Government Structure

“Uganda is a democratic republic with a governance system comprising central and local governments”\(^1\). In urban settings, there are city, municipal, division/town, ward and cell councils. In rural areas, there are district councils, counties (which are administrative units without a council), sub-county councils, parish councils and village councils. The primary sources of revenue are transfers from central government; however local governments are mandated to raise revenue locally, including property taxes, licenses, and user fees. Responsibility for transport and environmental protection is shared between central and local governments. Districts and municipal councils are also responsible for the provision of primary and secondary education, safe water supplies and public health and are encouraged to devolve some services to the lower tiers. Local economic development (LED) is the responsibility of the districts and lower tiers of government.”

For over 20 years, the Government of Uganda has been implementing a decentralized governance system which is the devolution of power and functions of planning, service delivery and management of basic services from the Centre to local authorities. The decentralization process is one way of ensuring that communities participate fully and in a sustainable manner in the decision-making process on matters affecting socio-economic progress. The commitment of the Government of Uganda (GOU) to this decentralization process is demonstrated by the various legislations that have been enacted to support it. Most notable among these are the provisions of the Constitution of Uganda (1995) and the Local Government Act (1997), which are aimed at empowering the local authorities to manage their own affairs.

In addition, GOU instituted strategic programs to enhance the enacted law, for instance, the Fiscal Decentralization Strategy (FDS) in June 2002, to strengthen the fiscal decentralization by increasing the autonomy of Local Governments in managing their recurrent and development budget along with improved accountability and administrative performance incentives. The Local Government Development Program (LGDP) supports the GOU's poverty eradication strategy and the decentralization policy and has provided an important basis for the FDS. The LGDP aims at improving on the performance of local governments’ statutory service obligations through:

\(^1\) Retrieved from https://www.clgf.org.uk/default/assets/File/Country_profiles/Uganda.pdf
effective, efficient and participatory planning, budgeting, resource allocation as well as improved accountability and monitoring and evaluation procedures. The program also aims to enhance the capacity of the Ministry of Local Government to support the LGs, ensure a proper coordination of capacity building and further development and a coherent implementation of the decentralization policy. All these programs and decision-making processes at various levels must be based on sound data resources.

1.3. Review of Existing Monitoring Systems

Prior to the development and pilot test of CBMS in Uganda in 2016, there are a number of existing monitoring systems in the country. Most of these systems compile and collate administrative data from the local governments and use it for evidence based decision making.

**National Integrated Monitoring and Evaluation Strategy (NIMES)**

The Government of Uganda is committed to the development of monitoring and evaluation systems across Uganda. In 2003, the Cabinet approved a coordination framework to ensure that all government programmes are monitored and evaluated in a rational and synchronized manner. The framework is supported by a National Integrated Monitoring and Evaluation Strategy or the NIMES. This encompasses all efforts aimed at information gathering, dissemination and usage (vertically – district-sector-national and horizontally – within and between districts and sectors) with respect to the delivery of government’s intended goals and policy objectives². NIMES is not only a new M&E system but also a coordination mechanism that covers all existing M&E systems from a country-wide, sector-wide and local government perspective to reduce duplication and enhance timeliness, data quality and actual use of M & E information³.

The Office of the Prime Minister (OPM) is responsible for coordination, monitoring and evaluation of government policies, programmes and projects. The OPM is the secretariat for the National Integrated Monitoring and Evaluation Strategy. The NIMES key objectives are:

- Ensure that a sound evidence base is available to inform decision making in national policy frameworks.
- Enhance M & E capacity in Uganda
- Ensure that key stakeholders have a forum for articulating data and information needs.

² Social Protection Sector Review, 2014
• Coordinate M & E initiatives in Uganda by providing mechanisms which align the existing M & E initiatives with identified data and information needs.

There are various working groups that have been created under NIMES that address a range of issues. These are Monitoring and Evaluation in local governments; policy research; evaluation; national statistical data; sector management information systems and spatial data; civil society organizations and M&E and financial information.

Some of the existing monitoring systems prior to CBMS are described below.

**Community Information System (CIS)**

The CIS is implemented by Uganda Bureau of Statistics (UBOS). It is intended to respond to the ever-growing need for provision of accurate, regular and reliable data/information to facilitate evidence based planning, implementation, monitoring and evaluation of Government and other development partner programmes at all levels of administration. The CIS is a multi-agency initiative coordinated by UBOS working with other government institutions including Ministry of Finance, Planning and Economic Development, Ministry of Gender, Labour and Social Development, National Planning Authority, the Ministry of Local Government, the Ministry of ICT, Office of Prime Minister and the Local Governments. The CIS generates data at household, parish and sub-county levels using the Community register, Household register, general parish register and Micro-Finance and Cooperatives. The CIS programme has extended to 49 districts and is expected to be rolled out to all the districts of the country. The CIS generates basic information from communities to monitor households’ welfare as well as promote efficient utilization of information at grassroots level. It is important to note that Katakwi district where the Community Based Monitoring System study was pilot tested is not yet among the benefiting districts.

Specifically, the CIS aims to facilitate regular and sustainable monitoring of effectiveness of Government, Non-Governmental Organizations (NGOs) and other poverty eradication initiatives among communities for timely appropriate policy formulation and decision making. It also aims to enhance the use of reliable and accurate data among communities and households in the production processes for efficient utilization of resources. It also aims to support participatory development planning at the various levels of local governments, and facilitate identification of households by their socio-economic characteristics and specific needs.

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The Orphans and other Vulnerable Children Management Information System (OVCMIS)

OVCMIS was developed by the Ministry of Gender, Labour and Social Development as a monitoring and evaluation tool for measuring performance of the Second National Strategic Programme Plan of Intervention (NSPPI - II) that was launched in 2011. The Ministry desires that all OVC service providers not only collect relevant and functional information on a routine basis to monitor the NSPPI indicators but also use this information to plan and make decisions to improve service delivery. OVCMIS calls on service providers to report through it in order to aggregate data on total reach and measure the Country's progress towards achieving the goal of NSPPI. It involves collecting, processing, storing and communicating information relating to the OVC interventions, implemented by OVC service providers, to the various levels of local and central government. This is intended to facilitate them in discharging their mandate in respect to policy adjustment and management decisions that lead to increased access to quality, integrated and comprehensive services by OVC and their caregivers. The OVCMIS specific objectives are:

- To provide quick and timely OVC data to stakeholders for effective decision making for expanded access to child care and protection services.
- To generate OVC service provision reports to track performance.
- To generate information, which OVC service providers and stakeholders can use to make compare actual performance with the set performance standard;
- To obtain information to use in judging program efficiency and effectiveness.

The primary users of OVCMIS include the Civil Society Organizations (CSOs) whether local, national and/or international – Nongovernmental Organizations (NGOs) and Faith Based Organizations (FBOs) and Community Based Organizations (CBOs), Child care and protection institutions and, Community Based Service Department staff; Community Development Officer at Sub County and Probation and Social Welfare Officer (PSWO) at district7.

Education Information Management System (EMIS)

The Ministry of Education and Sports collects information about the education sector in Uganda. The collected data is used as an input to the planning and monitoring of the provision of quality and relevant education to Ugandans8. Results generated from the EMIS are used in monitoring progress in improving education in the country.

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EduTrac

EduTrac is a mobile phone based data collection system developed by UNICEF in partnership with the Ministry of Education and Sports to collect timely data including teacher and student attendance and delivery of materials. EduTrac helps districts to improve their education planning and provides better and more timely supervision to schools based on system reports. The system complements the Education Information Management System and was launched in 2011. Teachers and administrators send data into the system on regular basis say weekly⁹.

Health Information Management System (HIMS)

The objective of the HMIS is to generate information to improve health care management decisions at all levels of the health system. It is a routine monitoring system that plays a specific role in the monitoring and evaluation process. HMIS was designed for use at all health centres (public and private), as well as regional and national hospitals for planning, managing and evaluating the health care delivery system¹⁰. HMIS collects information on health and nutritional status from all health units monthly. Data generated includes information on outpatient and inpatient attendance, diagnoses of diseases, maternity, immunization and child health. The compiled data at national level is disseminated through monthly reports.

Social Protection Management Information Systems

All social protection programmes collect and report some level of management information. However, a limited number of them have formal systems assisted by software linked to databases. These include Social Assistance Grant for Empowerment (SAGE), Orphans and other Vulnerable Children (OVC), Northern Uganda Social Action Fund (NUSA) and National Social Security Fund (NSSF) Management Information Systems. These systems are characterized by heavy dependence on manual or semi-electronic (often excel based) MISs, designed to meet the needs of individual programmes’ functionality and emphasis on reporting to headquarters with no back flow to districts – with exception of OVC¹¹. Given the challenges facing the current social protection MISs, the Social Protection Policy priorities strengthening the institutional framework for social protection service delivery and among the strategies will include establishing an effective monitoring and evaluation system for social protection as well as developing management information systems for different components of social protection¹².

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¹¹ Social Protection Sector Review 2014

¹² The Uganda National Social Protection Policy, 2015
**Information System for Food and Nutrition Security**

The Ministry of Agriculture, Animal Industries and Fisheries with support from Food and Agricultural Programme is implementing a Technical Cooperation Programme (TCP) project coded Uganda Information System for Food and Nutrition Security. It aims at providing qualitative and quantitative data as well as information on the food insecure, malnourished and vulnerable population in different parts of Uganda in order to understand the underlying causes. This TCP project aims at harmonizing the existing systems of collection, reporting and monitoring of food security and nutrition data making available information for better decisions.\(^\text{13}\)

**MTrac**

It is a government led initiative to digitize the transfer of Health Management Information System (HMIS) data via mobile phones. The initial focus of MTrac is to speed up the transfer of HMIS weekly Surveillance Reports, provide a mechanism for community members to report on service delivery challenges, and empower District Health Teams by providing timely information for action.\(^\text{14}\)

**U-Report**

It is a free social monitoring tool for community participation, designed to address issues that people care about. It is based on simple Short Message Service (SMS) messages (poll questions, results, and sharing of useful information) designed to strengthen community-led development, citizen engagement and positive change. SMS polls and alerts are sent out to U-Reporters and real-time response information is collected. Issues polled include among others health, education, water, sanitation and hygiene, youth unemployment, HIV/AIDS, disease outbreaks, social welfare sectors. Data received can be aggregated by age, gender and district in real time. U-Report was launched in May 2011 and developed by UNICEF Uganda.\(^\text{15}\)

Other monitoring systems include – The Transport Sector Data Management System in the Ministry of Works and Transport and External Employment Management Information System (EEMIS) under the Ministry of Gender, Labour and Social Development.

The government of Uganda as well as development partners and CSOs have tried to put in place a range of monitoring systems aimed at providing timely information to enhance planning, budgeting and decision making. These systems have been established in the different sectors as evidence above. However, there is lack of evidence on existing monitoring systems that provide information on youth employment and entrepreneurship at national and local government level.

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\(^{13}\) http://www.agriculture.go.ug/fsn/pages/home accessed on 29th July 2016

\(^{14}\) http://www.mtrak.ug/ accessed on 26th July 2016

\(^{15}\) http://ureport.ug/about/ accessed on 26th July 2016
2. Key Features of CBMS in Uganda

In the implementation of CBMS in Uganda, the local research team based at the DRT led the (1) design and identification of the indicators and preparation of data requirements for monitoring poverty (and SDG) to be monitored; (2) preparation and implementation of questionnaires and local training materials for the data collection; (3) local capacity building for conduct of data collection; (4) processing and analysis of data; (5) preparation of reports; and (6) organization and conduct of local training, validation and dissemination activities. The DRT sought for assistance from the Community-Based Monitoring System (CBMS) International Network Office based at the De La Salle University (DLSU) in Manila, Philippines to provide technical support for development of the mobile application using the CBMS Accelerated Poverty Profiling tools for data collection (CBMS Scan) and the database management (CBMS Portal). The CBMS-Scan incorporates the GIS coordinates of households covered by the data collection.

The DRT also collaborated with experts from the School of Statistics and Planning, Makerere University and Katakwi District Local Government. Given the intended outputs and outcomes of CBMS, local leaders and other stakeholders at the village, sub-counties and district levels were involved throughout the process. The district contact persons introduced the project to the sub-county authorities while seeking their support and participation in the CBMS process. The local leaders together with the district contact persons (District Community Development Officer and Acting District Planner) sensitized the community on the project prior to the data collection, and supervised the data collection in the sites. The district contact persons participated in the selection and recruitment of the data collection enumerators. The local leaders supported the enumerators throughout the entire data collection. The district contact persons participated in the training of the enumerators and shared information about the local context of the study areas. The households in the targeted villages/ sub-counties participated in the CBMS census as well as in focus group discussions.

2.1. Adjustment of CBMS Methodology to Ugandan Context

2.1.1. Core Poverty Indicators

Poverty is recognized as “pronounced deprivation in well-being or welfare”. It has various dimensions including material well-being (basic needs of life like nutrition, good health, sanitation, shelter, education, etc.), lack of human rights, citizenship or social networks. Moreover, economic factors such as low income and lack of assets, limited access to markets or public services can lead into poverty. Under this context, a core set of indicators to be monitored by the CBMS in Uganda was initially proposed by Kagugube, Banga, Mubiru, and Nsubugu (2016). The core indicators were further enhanced in 2018. The household and individual level indicators (Table 1) cover the areas of education, employment, participation in financial sector and agriculture, health, access to water, access to information, and access to financial services.
**Table 1: CBMS core indicators (individual and household level), Uganda, 2018**

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 10 years and above who are illiterates</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 6-12 years who are not attending primary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of children aged 13-18 years who are not attending secondary school</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons (6-24 year olds) currently not in school</td>
</tr>
<tr>
<td><strong>Socio-economic</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of youths who are unemployed</td>
</tr>
<tr>
<td></td>
<td>Proportion of the working age population that is unemployed</td>
</tr>
<tr>
<td></td>
<td>Proportion of the population not in employment, education or training.</td>
</tr>
<tr>
<td><strong>Participation in the Financial Sector</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of the adult population without a bank account</td>
</tr>
<tr>
<td></td>
<td>Proportion of the adult population without mobile phones</td>
</tr>
<tr>
<td></td>
<td>Proportion of the adult population without access to a mobile phone</td>
</tr>
<tr>
<td></td>
<td>Proportion of persons reporting using a mobile phone for financial operations</td>
</tr>
<tr>
<td></td>
<td>Proportion of the adult population unwilling to save money on a mobile phone</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of households with unsafe sanitation facilities</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of the households accessing drinking water from a far distance (beyond 1.0km for rural and 0.2km for urban)</td>
</tr>
<tr>
<td></td>
<td>Proportion of households accessing unsafe drinking water</td>
</tr>
<tr>
<td><strong>Nutrition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of children below 5 years (0-4 years) who feed on non-nutritious meals</td>
</tr>
<tr>
<td></td>
<td>Proportion of children 5-13 years who feed on non-nutritious meals</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of households not involved in growing of any crop</td>
</tr>
<tr>
<td></td>
<td>Proportion of households not involved in the rearing of any livestock</td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of households/youths without access to information</td>
</tr>
<tr>
<td><strong>Financial Services</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proportion of the adult population with no access to financial institutions</td>
</tr>
</tbody>
</table>

Indicators at the community level include service facilities for education, agriculture, labor, health, finance, and social amenities.
Table 2: CBMS core indicators (community level), Uganda, 2018

<table>
<thead>
<tr>
<th>Dimensions of Poverty</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Number of health facilities</td>
</tr>
<tr>
<td>Education</td>
<td>Number of schools</td>
</tr>
<tr>
<td>Water</td>
<td>Water source functionality rate</td>
</tr>
<tr>
<td>Financial</td>
<td>Availability of financial institutions offering services to the youths</td>
</tr>
<tr>
<td>Agricultural facilities</td>
<td>Proportion of youths without access to agricultural extension services, cooperative societies, inputs, markets, etc.</td>
</tr>
<tr>
<td>Labor</td>
<td>Number of calls for job recruitment</td>
</tr>
<tr>
<td>Other social and economic amenities</td>
<td>Availability of social centres, membership clubs, investment clubs, sports clubs, etc.</td>
</tr>
</tbody>
</table>

2.2. Data Collection

Two data collection modules were employed to capture, quantitative and qualitative data, were employed. The CBMS module was utilized to generate quantitative data and was administered in all households of the study sites. The enumerators visited and interviewed the household respondents in their homes. On the other hand, a checklist to gather the qualitative information was also developed to guide the conduct of Focus Group Discussions (FGDs) at the village and sub-county level.

2.2.1. Data Collection Instruments

The CBMS module was used to generate quantitative data through a household census and was administered in all households of the project sites. For the qualitative component, a checklist was developed to guide the Focus Group Discussion (FGD) and key informant interviews. From the FGDs, qualitative data was generated.

The data collection instruments in the implementation of CBMS include 3 questionnaires: (1) a household profile questionnaire, (2) a community profile questionnaire, and (3) a rider questionnaire. The design of the CBMS questionnaire, particularly items relating to youth and employment, drew from the standard set of questions from the International Labour Organization (ILO), Geneva as well as the Uganda Bureau of Statistics (UBOS) Labour Force surveys.

The enumerators used tablets to collect the data which was uploaded on the CBMS Portal every day during the field operations.

The data collection instruments were pre-tested prior to actual data collection. The purpose of the pretest was to determine the strengths and weaknesses of the data collection tools in terms of
format, wording, and order/flow of questions, and the contextual appropriateness of the questions, test the clarity of the questions, estimate the time needed to administer the questionnaires per respondent; and identify any additional information needed to improve the data collection tools. It also helped in preparations for the field operations as the pre-test facilitated better understanding of resource requirements for the entire data collection exercise including human resource requirement and the related financial costs; and for setting the timetable for the data collection.

2.2.2. Identification and Training of Enumerators

As part of the CBMS implementation, enumerators were recruited locally and trained. The trained enumerators can support other data collection exercises in addition to updating the CBMS data. If supported, the enumerators would be key in the creation of long-term and decentralized CBMS, where the majority of the collection and interpretation of data is directly managed by local communities for the sustainability of the system.

For the CBMS implementation in 2018, the enumerators were recruited from the Katakwi district in order to minimize or even avoid the challenge of language barrier. The minimum qualification for the enumerators was a certificate of high secondary school. However, most of the enumerators selected were university graduates. Overall, 25 enumerators, five (5) data editors, and three (3) supervisors were recruited to cover the entire sub county.

The local CBMS research team worked very closely with the District technical team, specifically, the District Community Development Officer and Acting Planner. The District officers helped to identify and recruit enumerators from the research area who could fluently speak the local language. These were trained prior to commencement of the data collection exercise. They were trained at district level by the local CBMS research team from the Centre (DRT). The training for the fieldworkers was carried out at district level by the trainers from DRT. The trainers from DRT, the School of Statistics and Planning, and the District supervised the data collection.

2.2.3. Study Area and Field Operations

For the second round of CBMS implementation in Katakwi district in 2018, data collection was conducted for two months. Data was collected through a household census. The data collection was carried out during the day. Field supervisors and editors were assigned during the data collection. The field editors were in charge of checking for completeness and consistency of the data gathered by the enumerators on a daily basis using tablets. The supervisors, on the other hand were in charge of conducting the FGDs at both village and subcounty level. The consent forms approved by the Uganda National Council for Science and Technology (UNCST) were used to seek approval from the respondents before the interview.
The CBMS in 2018 covered two additional sub-counties in Katakwi district to fill the information gap on youth employment strategies and for examining issues on financial inclusion at the local level. Katakwi district is constituted by two counties of Usuk and Toroma. It has a total of 17 lower local governments (16 sub-counties and one Town Council). According to the 2014 Population and Housing Census, Katakwi district had a total of 30,791 households with an average household size of 5.4 persons per household. Two lower local governments of Akobo and Katakwi were enumerated.

### 2.3. Data Processing

Data collected from the CBMS census in the pilot sites was processed by the local research team in DRT. To generate the core poverty indicators, SDG indicators and data requirements for the study, CBMS data transmitted from the field census site to the CBMS Portal are downloaded. For the project, data on the core poverty indicators, SDG indicators, and additional data requirements for the study on youth entrepreneurship and financial inclusion was processed using STATA software.

In addition, poverty maps of the CBMS results were also prepared and produced using CBMS-QGIS software. For instance, in sample map (shown in Figure 1), the poverty maps presented data on location and status of households living in terms of income poverty in the study area. The red dots in the map show households with income below the poverty line.
2.4. Data Validation

As part of the data validation, the results were presented and shared with stakeholders at district and the Lower Local Government (LLG) level. During the forum, the stakeholders at all levels were given a chance to comment on the results to provide feedback to the local CBMS research team before the report on the CBMS findings is finalized.

The data validation exercise was also conducted to disseminate key CBMS findings to the district leaders and community members to confirm the validity of results on the development (poverty) status of the community. For instance, some of the key findings presented and discussed refer to the identified poor access to sanitation facilities among the households. Data also showed that while many girls are enrolled in school only a few complete secondary levels. Results also showed more women than men were being involved in the saving groups and associations. During the validation meeting, participants provide additional information to enrich the analysis of the data gathered and indicators generated from the conduct of CBMS.

The results of the research were found to be very useful to the district leaders and communities and sub-counties to help in planning and service delivery. As such, the local CBMS research team was requested to share the information/data with other development partners and the relevant donors who could support the district based programs in light of the findings.
3. Uses of CBMS

*Improving Local Governance and Planning*

There is a general lack of information for the decentralized governments to enable them plan for the villages, parishes and lower local governments (sub-counties, divisions, and town councils). The CBMS responds to the ever-growing need for provision of accurate, regular and reliable data/information to facilitate evidence based planning, implementation, monitoring and evaluation of Government and other development partner programmes at all levels of administration. The basic information generated from the communities/villages to monitor households' welfare as well as promote efficient utilization of information at grassroots level, is meaningful for the LLGs and the districts. CBMS is very useful since it enables the planners to plan and make decision with evidence.

Figure 2 presents a feedback from the local governments on how the CBMS data would be utilized to inform evidence based decision making at the various levels.

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**Figure 2: Uses of CBMS Information**

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16 The results and analysis of CBMS data on the poverty and SDG indicators are contained in the CBMS Uganda Research Paper entitled, “Community response to localization of the SDGs”, by Johnson Kagugube, Dr. Margaret Banga, John Nsubuga, and Allan Kyebambe. While results of analysis of CBMS-generated data on youth unemployment and financial inclusion are contained in the CBMS Uganda Research Paper, “Determinants of financial inclusion among the youth in Uganda”, by Dr Margaret Banga and Johnson Kagugube.
**SDG Monitoring**

The study in Katakwi showed how CBMS can facilitate tracking of the progress on the SDGs as it generates data that can monitor SDG indicators at the local level. Table 3 shows that the CBMS can monitor 23 indicators across 12 goals. CBMS Data can be disaggregated across age group, sex and location among others. CBMS data is useful for preparing SDG reports at the local level. With the data generated from the implementation of CBMS in Katakwi, a report on the status of Akoboi and Katakwi sub-counties was produced (Kagugube, et al., 2019).

<table>
<thead>
<tr>
<th>Sustainable Development Goals</th>
<th>No. of CBMS Indicators</th>
<th>CBMS Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal 1 – No Poverty</strong></td>
<td>5</td>
<td>Proportion of population below the international poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living below the national poverty line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population covered by social protection floors/systems (Supplemental indicator: proportion of senior citizens covered by social pension)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population living in households with access to basic services</td>
</tr>
<tr>
<td><strong>Goal 2 – Zero Hunger</strong></td>
<td>1</td>
<td>Prevalence of undernourishment</td>
</tr>
<tr>
<td><strong>Goal 3 – Good Health</strong></td>
<td>2</td>
<td>Maternal mortality ratio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Under-five mortality rate</td>
</tr>
<tr>
<td><strong>Goal 4 – Quality Education</strong></td>
<td>3</td>
<td>Net and gross enrollment rate in primary and secondary education</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of children in child development centers/ day care centers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Net and gross enrollment rate in kindergarten</td>
</tr>
</tbody>
</table>
### CBMS in Africa: Uganda

<table>
<thead>
<tr>
<th>Goal 5 – Gender Equality</th>
<th>1</th>
<th>Proportion of households with at least one member who owns a mobile telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 6 – Clean Water and Sanitation</td>
<td>2</td>
<td>Proportion of population using safely managed drinking water services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water</td>
</tr>
<tr>
<td>Goal 7 – Affordable and Clean Energy</td>
<td>1</td>
<td>Proportion of households with access to electricity</td>
</tr>
<tr>
<td>Goal 8 – Decent Work and Economic Growth</td>
<td>3</td>
<td>Unemployment rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of youth (aged 15-24 years) not in education, employment or training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion and number of children aged 5-17 years engaged in child labor</td>
</tr>
<tr>
<td>Goal 10 – Reduced Inequalities</td>
<td>1</td>
<td>Proportion of people living below 50 percent of median income</td>
</tr>
<tr>
<td>Goal 11 – Sustainable Cities and Communities</td>
<td>1</td>
<td>Proportion of persons victim of physical or sexual harassment</td>
</tr>
<tr>
<td>Goal 16 – Peace, Justice and Strong Institutions</td>
<td>2</td>
<td>Proportion of population subjected to physical, psychological or sexual violence in the previous 12 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportion of children under 5 years of age whose births have been registered with a civil authority</td>
</tr>
<tr>
<td>Goal 17 – Partnership for Goals</td>
<td>1</td>
<td>Proportion of individuals using the internet</td>
</tr>
</tbody>
</table>

**Examining Youth Employment and Entrepreneurship**

Kagugube, Banga, Mubiru, and Nsubugu (2016) were able to generate baseline data on poverty and youth employment and entrepreneurship in Katakwi District, Uganda using CBMS. A rider questionnaire was used to collect data on the economic activities, enterprises, access to financial institutions and credit facilities, and community participation of the youth (individuals aged 18 to 30 years old).
Financial Inclusion

In addition, CBMS data was used to determine the state of financial inclusion among the youth in the pilot areas and identify the key factors that affect financial inclusion (Banga et al., 2019). Specifically, CBMS provided the data to examine the level of access of affordable and useful financial services among the youth, the barriers they faced, and the factors determining the opportunities open to them. One of the key findings in the study was that educated youth are more likely to have access to financial support and services. With this, Banga, Kagugube, Nsubuga, and Kyebambe (2019) have come up with policy implications emphasizing the importance of the Katakwi District Education Department collaborating with financial institutions to conduct seminars on saving and financial services.
References

