

Experiences with the Development and Use of Poverty Maps

Case Study Note for GUATEMALA*

1. Background information on the poverty mapping initiative

In 2000, the president of Guatemala commissioned the development of a Poverty Reduction Strategy Program (PRSP) (Government of Guatemala 2000).¹ SEGEPLAN, the Secretariat of Planning and Programming for the Presidency, was selected to lead PRSP development. The agency was particularly interested in helping to facilitate better targeting of public expenditure to reach Guatemala's poor communities. Following an October 2000 presentation by the World Bank on the development of highly disaggregated poverty maps combining census and survey data, SEGEPLAN was convinced that the development of such a poverty map for Guatemala could be instrumental in achieving better targeting national public expenditure.²

The Guatemala PRSP was developed under a tight time frame: SEGEPLAN was commissioned to produce the PRSP in about six months. SEGEPLAN and the World Bank decided to develop an initial poverty map for inclusion in the PRSP based on the 1998-99 ENIGFAM household expenditure survey (*Encuesta Nacional de Ingresos y Gastos Familiares*). Although not designed for poverty assessment, ENIGFAM does capture a number of critical poverty-related variables that correspond well to the 1994 census.³ A specially designed poverty-assessment survey—*Encuesta Nacional sobre Condiciones de Vida*, or ENCOVI—is currently in development. Following its completion, anticipated in October 2001, the poverty map will be updated.

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¹ Guatemala is not classified by the World Bank and International Monetary Fund as a Highly Indebted Poor Country (HIPC) and thus is not required by these institutions to conduct a PRSP.

² Note that a map of unsatisfied basic needs had been previously developed by Guatemala's FIS (Social Investment Fund). While this map was used by the FIS to target social investment, it was not used by other institutions. SEGEPLAN, with the assistance from the World Bank, recognized that a poverty map based on Hentschel et al. (2000), would more adequately capture poverty than the previously developed unsatisfied basic needs indicator.

³ Compared to Living Standards Measurement Surveys (LSMS), the ENIGFAM has a greater focus on urban areas. Approximately 70% of households surveyed were from urban areas.

2. Process of poverty mapping

Guatemala's poverty map, based on the ENIGFAM and 1994 census, was developed using the Hentschel et al. (2000) methodology. A prediction model of consumption was estimated and the predicted parameters applied to the census data to derive household-level poverty statistics. The poverty map was disaggregated to the municipal level.⁴

The map development process featured an approach designed to build long-term in-country analytical capability and to create national ownership of the poverty map results. A team of nine individuals from three institutions—SEGEPLAN, INE (the National Statistical Institute), and University of Rafael Landívar (URL)—were involved in producing the map.⁵ This group represented a mix of information producers (INE, which was already involved in developing the ENCOVI), information users (SEGEPLAN, with its mandate to coordinate national planning), and information analysts (URL). The World Bank and an external consultant provided technical assistance.⁶ While staff time was covered by the institutions involved, the World Bank provided the funding for technical assistance.

Under tight time constraints, the poverty map team conducted the statistical estimates and developed the poverty map within three months, between November 2000 and February 2001. Although the current poverty map needs to be updated with higher quality data (i.e., 2001 ENCOVI data), it provides information on the proportion of the population in poverty, the proportion in extreme poverty, the poverty gap, the extreme poverty gap, and the severity of poverty at a municipal level. The complex econometric modeling involved in map production was at times challenging, as several of the team members were trained primarily as statisticians rather than economic modelers.

Upon completion of the poverty map, a technical report and draft guidelines were developed. The map was integrated into the PRSP and various presentations were given on the PRSP and poverty map results. In particular, a presentation on the poverty mapping results was given in February 2001 to the Cabinet, including the vice president and senior-level official from numerous ministries. The Cabinet was very responsive: the Minister of Finance even suggested that the poverty map be used as a critical instrument for national budgeting. Such senior-level support has facilitated the use of the poverty map in Guatemala to help restructure public expenditure procedures (see Section 3).

To further disseminate poverty mapping results, SEGEPLAN hired the Latin American think tank *Facultad Latinoamericana de Ciencias Sociales* (FLACSO) to develop a non-technical report that could reach a larger audience. SEGEPLAN has also developed a number of informational posters and booklets.

⁴ Note there are eight regions, 22 departments, and approximately 330 municipalities in Guatemala.

⁵ Specifically, the team included four researchers from SEGEPLAN, two from INE, and three from URL.

⁶ Carlos Sobrado provided technical assistance from the World Bank, while Werner Hernany was employed as an external consultant.

3. Use and impact

The poverty map has had a tremendous impact in Guatemala, especially on the restructuring of the National Public Investment System (NPIS). With senior-level support, particularly from the Ministry of Finance, SEGEPLAN is currently revising procedures for allocation of public investment funds. The new procedures are intended to affect national public-investment budgeting every year. In the past, the Ministry of Finance used no standard criteria to select projects for investment. These new NPIS procedures are intended to make national budgeting more responsive, especially to the needs of poor communities.

SEGEPLAN has been developing technical criteria and indicators to restructure the NPIS. These indicators fall under three main categories: geographic, political, and sustainability criteria. The geographic criteria—including indicators on poverty level, coverage of basic services, and distance from basic services—will rely heavily on information provided by the poverty map. Such geographic criteria are expected to constitute approximately 50% of the total points used to prioritize projects. SEGEPLAN will apply these indicators for the first time to prioritize projects requesting NPIS funding (estimated at \$576.5 million) in the 2002 fiscal year.

Besides SEGEPLAN, line ministries will be asked to use the prioritization guidelines, including geographic targeting, to select projects for funding. SEGEPLAN plans to develop sector-specific prioritization guidelines (such as health and education) to facilitate their use within the line ministries. Government offices at the department level will also be asked to use targeting guidelines if national public-investment funds are requested.⁷ SEGEPLAN has conducted a small training on the current NPIS guidelines for 22 departmental delegates.

While the revision of the national budgeting procedures is by far the most notable application of the poverty map in Guatemala, there have been other uses. For example, the World Bank is currently using the poverty map in conjunction with other data (e.g., on transportation networks, health centers, schools, earthquakes, floods, landslides, river, elevation, and conflict) to help develop a road strategy for Guatemala. GIS (geographic information systems) data for this exercise was compiled primarily by various agencies in Guatemala, several of which have extensive GIS capacity. Overlaying the poverty map with roads data, preliminary analysis conducted at the World Bank indicates that poverty is strongly correlated with a lack of roads and that travel times are significantly higher in poor areas. This analysis highlighted three poor departments (Huehuetenango, Quiche, and San Marcos) in which accessibility to basic services is particularly low. An estimated US\$100 million will be allocated towards improving roads in six departments, the three mentioned above, plus another three that are expected to be selected based on poverty, economic potential, and accessibility criteria. To date, this GIS analysis has been conducted by the World Bank and Louis Berger, a consulting agency located in

⁷ Departments are administrative units in Guatemala. These 22 departments have their own budgeting system and will not be required to follow national guidelines unless national public-investment funds are requested. However, SEGEPLAN does intend to provide information to the departments to show how poverty mapping results can be used in department-level decision-making.

Washington DC. However, once the methodology is refined, project partners intend to build this type of analytical capacity in Guatemala.

The Ministry of Education has also referred to the Guatemala poverty map to help validate its selection of municipalities for a poverty-focused scholarship program for elementary schools. Prior to the availability of the poverty map, the program used data on illiteracy and unsatisfied basic needs (housing, water, and electricity) to select the poorest municipalities within the poorest of Guatemala's 22 departments. Following the release of mapping results, the selected municipalities were crosschecked against the poorest municipalities on the poverty map. This comparison indicated a good fit and helped demonstrate that the scholarship program was well targeted. Students aged 7 to 12 from poor families are candidates for scholarships of about US\$40 per year. School boards within the selected municipalities are asked to identify candidate students. The program initially planned to distribute 145,000 scholarship nationwide; however, due to national budget constraints, 30,000 scholarships have been allocated. Staff from the Ministry of Education obtained access to the poverty map through an informal personal contact at SEGEPLAN, perhaps indicating that formal efforts to disseminate poverty mapping results should be strengthened.

More recently, poverty mapping results have been used in conjunction with vulnerability, nutrition, and other socioeconomic data to identify municipalities in need of anti-hunger initiatives. An action plan has been developed, under the lead of the Social Cabinet, to help combat hunger in 102 municipalities. This initiative is ongoing.

The development of the PRSP and poverty map is having tremendous impact in Guatemala. The 22 department delegates involved in the brief SEGEPLAN training have responded very favorably to the use of the poverty map and prioritization guidelines. They indicated that such procedures will help make the project selection process in Guatemala more objective and accountable. In addition, the World Bank and Ministry of Education have stated that the use of the poverty maps, with their distinctive visual impacts, has helped substantiate, validate, and make more transparent governmental involvement and actions in various sectors. The development of the PRSP and poverty maps has also affected SEGEPLAN as an institution, producing increased credibility and leading to more active involvement in the development of national budgeting guidelines. The development of the poverty map entailed assembling a multi-institution team and has encouraged collaboration between institutions that in the past had often worked in isolation.

Bibliography

Government of Guatemala. 2000. Poverty Reduction Strategy Program (PRSP).