

# Experiences with the Development and Use of Poverty Maps

## Case Study Note for MOZAMBIQUE\*

---

### 1. Background information on the poverty mapping initiative

One of the many impacts of Mozambique's civil war (1977-92) has been the general lack of in-country data from the early 1980s through the mid-1990s. This lack of data with nationwide scope became particularly evident to the Ministry of Planning and Finance (MPF) as it developed a poverty reduction strategy in 1995. Due to the inadequate supply of in-country data, in 1995 the government commissioned the National Directorate of Statistics (now known as the National Statistics Institute, or INE) to develop the National Household Survey of Living Conditions (conducted in 1996-97) and the National Population and Housing Census (conducted in 1997).

In 1998, a national poverty assessment used the newly available household survey data to develop a national poverty profile; a coarse, provincial-level<sup>1</sup> poverty map; and several analyses (both formal and informal) relating poverty to food security, human capital development, and safety nets. While the provincial-level poverty map was eventually included in the assessment report, reservations were expressed. Some considered information regarding the geographic distribution of poverty too politically sensitive: the first multiparty municipal elections were to be held soon after the informal presentation of the poverty mapping results. The objectives of the national poverty assessment were to: estimate the extent of absolute poverty; identify the characteristics of the poor; distinguish vulnerable groups; formulate policy actions to reduce poverty; and develop capacity within Mozambique for poverty analysis. More generally, the goal was to provide a sound empirical basis for the elaboration of poverty reduction policies. The national poverty assessment report was a key input for the National Action Plan for the Reduction of Absolute Poverty (PARPA) and the government's Poverty Reduction Strategy Program (PRSP).

The results of the national poverty assessment, presented at a national conference in October 1998 and published in early 1999, generated substantial interest on the part of numerous ministries and donors to develop more highly disaggregated poverty data. This led to the elaboration of provincial poverty profiles in early 2000, which were based on the 1996-97 household survey data. The availability of high-resolution data was intended to help refine the poverty database and poverty reduction policies. In 1999, the International Food Policy Research Institute (IFPRI) developed a proposal to construct

---

\* This study note includes contributions from Ken Simler (IFPRI, [k.simler@cgiar.org](mailto:k.simler@cgiar.org)) and was edited by Mathilde Snel and Norbert Henninger. A summary of all case studies can be found at: <http://population.wri.org/> or <http://www.povertymap.net/pub.htm>

<sup>1</sup> There are 10 provinces in Mozambique, with the capital city, Maputo, often treated as a separate, 11<sup>th</sup> province.

high-resolution poverty maps for Mozambique and Malawi. Funding for this purpose was successfully obtained from the Rockefeller Foundation.

## 2. Process of poverty mapping

Mozambique's first poverty map was developed—albeit at a coarse, provincial level of resolution—in 1998 by staff from the MPF, Eduardo Mondlane University (UEM), and IFPRI. This map used 1996-97 national household survey data<sup>2</sup> and relied on a household welfare indicator based on food consumption (i.e., food produced, purchased, earned, or received as gifts) and non-food goods and services earned as wages or received as gifts. The poverty map indicated that the incidence of poverty was at 69% in Mozambique, with especially high rates in the central provinces. This coarse, provincial-level map could help target national resources *among* provinces, but could not provide information to help direct funding to the poorest areas *within* a given province. Hence, the development of the 1998 poverty map stimulated substantial interest in creating higher-resolution poverty data.

To respond to this demand, IFPRI and the MPF are currently developing, with Rockefeller Foundation funding, high-resolution, district- and administrative post-level poverty maps.<sup>3</sup> The Hentschel et al. (2000) methodology is being used to estimate welfare measures for these smaller geographic units. First, the 1996-97 national household survey data are being used to develop a welfare model based on variables found in both the survey and census. The estimated coefficients from the model are then applied to 1997 census data to predict welfare for all households in Mozambique. Maps indicating the poverty headcount, poverty gap, and inequality measures are being developed.<sup>4</sup> Standard error is being estimated and heteroscedasticity will be corrected for. Error assessments are being conducted to determine if the survey and census data can be used to develop a more highly disaggregated poverty map at a local level (*localidades* in rural areas and *bairros* in urban areas).<sup>5</sup>

Development of the district- and administrative post-level poverty maps began in earnest in late December 2000 and a preliminary set of poverty maps was produced in mid-March 2001. A complete set of poverty and inequality maps is anticipated by the end of October 2001. The statistical estimations and poverty mapping are being conducted by Ken Simler of IFPRI and Virgulino Nhate of the MPF. Work on the poverty mapping by IFPRI and MPF staff has been primarily part time. The involvement of the MPF in poverty mapping is thought to have helped substantially in obtaining full access to census data, an unusual request in Mozambique, as in many other countries. In an effort to broaden poverty mapping capacity and to support continued collaboration between MPF

---

<sup>2</sup> The national household survey was conducted between February 1996 and April 1997. It resembles the Living Standards Measurement Survey (LSMS) and includes information on consumption patterns, sources of income, health, education, agriculture, and quality of housing. The survey sampled 8,250 households that are representative of Mozambique's ten provinces and the Maputo metropolitan area.

<sup>3</sup> There are 141 districts and 418 administrative posts in Mozambique.

<sup>4</sup> Preliminary work indicates that the regression fits are quite good, with adjusted R<sup>2</sup> of between 0.47 and 0.63.

<sup>5</sup> There are 1,933 *localidades* and *bairros* in Mozambique.

and INE, two MPF staff (one of them Mr. Nhate) and one from INE attended a recent poverty mapping workshop in South Africa.

Concerns have been raised regarding the long-term sustainability of poverty mapping in Mozambique, due to a potential lack of sufficient staff resources and capacity. The MPF is expected to take the lead in future poverty analysis and mapping initiatives, while the INE will continue to compile and provide core data sets. The high level of analysis required to assess poverty map results may be particularly challenging. Mozambique's 15-year civil war has created a dearth of educated individuals, let alone university-level environmental and poverty analysts. A concerted effort should be made to build a cadre of broadly trained analysts who can work on future poverty mapping and analysis initiatives.

### **3. Use and impact**

Mozambique's high-resolution poverty maps are still in development and hence have not yet been used. Potential uses of the maps are expected to include the targeting of various programs to increase responsiveness to poor areas, as well as efforts to explore the spatial determinants of poverty. The availability of high-resolution poverty maps should contribute to decisions that are more firmly based on empirical evidence. In addition, future poverty mapping initiatives will likely stimulate demand for poverty data analyses and the analysts themselves (see Section 2).

Although coarse, the 1998 provincial-level poverty map was used by the Ministry of Health to help allocate some of its funds. The ministry developed a budgeting formula that took into account the results of the 1998 national poverty assessment. The coarse resolution of this map is thought to have limited its use; this concern then helped to generate demand for a higher-resolution poverty map (see Section 2). It is hoped that the new high-resolution, district- and administrative post-level poverty maps currently in development will be more extensively used to better inform and target future poverty reduction initiatives in Mozambique.

### **Bibliography**

Hentschel, J., J. Lanjouw, P. Lanjouw, and J. Poggi. 2000. "Combining Census and Survey Data to Trace the Spatial Dimensions of Poverty: A Case Study of Ecuador." *The World Bank Economic Review* 14(1): 147-65.