Experiences with the Development and Use of Poverty Maps

Case Study Note for MADAGASCAR*

1. Background information on the poverty mapping initiative

Following conversations with World Bank staff concerning poverty mapping and its various methodologies, a technical advisor based at the Ministry of the Interior's Risk and Disaster Management Unit (CNS) in Madagascar recognized that a poverty map would substantially contribute to a risk analysis being developed by CNS in collaboration with CARE, a non-governmental organization (NGO). The CNS analysis, conducted with funding from CARE, incorporates an assessment of vulnerability and hazards. The vulnerability assessment portrays socioeconomic fragility using a combination of approximately 80 indicators, ranging from vegetation indices and agricultural production data to malnutrition. The hazard assessment integrates data on natural disasters, such as the extent and frequency of cyclones, floods, droughts, and locust and cholera outbreaks. A poverty map would better inform the risk analysis regarding socioeconomic conditions in Madagascar.

CNS, CARE, INSTAT (*Institut National de la Statistique*) and the World Bank held several discussions to explore the possibility of developing a poverty map for Madagascar. The World Bank agreed to provide technical assistance, if the Government of Madagascar would commit technical expertise and a budget for poverty mapping. Like many other government agencies in Madagascar, CNS faces budget constraints, but was able to negotiate provision of in-country funding from CARE. Specifically, CARE will contribute US$7,000 to cover staff costs to conduct statistical estimations for poverty mapping (see Section 2). Madagascar represents the only known case in which NGO funding has been used to facilitate in-country poverty mapping activities, and indicates a potential source of support for poverty mapping initiatives, especially where government budgets are constrained. It was decided that the poverty mapping would be conducted under the CNS umbrella and that the final poverty maps and reports would be identified as joint products of CNS and CARE.

2. Process of poverty mapping

INSTAT was subcontracted by the CNS and CARE to conduct the statistical estimations for the poverty map. Two staff at INSTAT and one consultant are working part time to

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develop the statistical estimations, while the World Bank is providing technical support.[1] The development of the poverty maps relies on the Elbers, Lanjouw, and Lanjouw (2001) methodology. Data from the 1993 census[2] and 1993 *Enquête Permanent auprès des Ménages* (EPM) household survey[3] are being used to impute consumption. Furthermore, spatial environmental variables (e.g., vegetation index and drought data) provided by CARE at the *fivondrona* (district) level are being used (see Section 1). Development of the statistical estimations began in March 2001 and is to be completed by March 2002. Since INSTAT does not have extensive GIS (geographic information systems) expertise, CNS and CARE have volunteered to develop the poverty maps themselves and to train the INSTAT staff as required. The poverty maps will be developed at the *fivondrona* (district) and *firaisana* (commune) level.[4] A presentation was recently given on the current status of the poverty mapping exercise at a meeting of the Risk and Disaster Committee meeting, which consists of NGOs and government agencies involved in risk- and disaster-related work. Various NGOs and government agencies are aware of and have expressed interest in the poverty map (see Section 3).

3. Use and impact

The poverty map is expected to help the CNS and CARE target hotspots for risk and disaster management. The use of the poverty, vulnerability, and hazards maps should help allocate and better target all future risk and disaster management programming, including approximately US$3.5 million in CARE funds annually. Specifically, CARE plans to use the maps to inform projects ranging from urban water and sanitation to natural resources to risk and disaster management. The poverty map, in conjunction with the vulnerability and hazard maps, are expected to be important lobbying tools for all future CNS and CARE programming.

At present, CNS and CARE, like many other organizations, do not systematically use such information tools such as poverty mapping to target initiatives. Rather, projects are often developed primarily in response to specific concerns, events, or donor-driven needs. The use of the poverty, vulnerability, and hazard maps should result in more transparent, objective, and effective decision-making within CARE and CNS. While it has often supported CARE-funded initiatives, the CNS has expressed particular interest in and is eagerly awaiting the poverty, vulnerability, and hazard map results.

Aside from use by CNS and CARE, the poverty map is expected to help guide planning in various other line ministries and NGOs. In particular, the high-resolution poverty map should help facilitate Madagascar's current decentralization of government activities by

[1] Tiaray Razafimanantena and Jean Razafindravonona from INSTAT and Johan Mistiaen from the World Bank are developing the statistical estimations, while technical assistance is being provided by Berk Özler from the World Bank.
[2] Data for the census were collected in 1993 by the *Direction de la Démographie et Statistique Social* (DDSS) of the INSTAT.
[3] The EPM survey is based on data collected from 4,508 households in May 1993 and April 1994 by the *Direction des Statistiques des Ménages* (DSM) of the INSTAT.
[4] There are 111 *fivondrona* (districts) and 1,332 *firaisana* (communes) in Madagascar.

providing local-level decision-makers with highly disaggregated welfare information. For example, several administrators and provincial representatives of INSTAT have recently expressed interest in obtaining high-resolution poverty data, which may be used in local-level policymaking and to empower communities. As in other HIPCs (Highly Indebted Poor Countries), Madagascar's poverty maps will be used in the country's Poverty Reduction Strategy Program (PRSP). Moreover, donors are expected to use the high-resolution poverty information; for example, the World Bank plans to use the poverty map, in combination with information on local welfare and rural networks, to help allocate resources for road construction under its Rural Transport Project.

Bibliography

Elbers, C., J. Lanjouw, and P. Lanjouw. 2002. "Micro-Level Estimation of Poverty and Inequality". *Econometria*, forthcoming.