



Centre for World Food Studies  
Stichting Onderzoek Wereldvoedselvoorziening

## *Policy response of poverty patterns in Mozambique*

*First Training Workshop: Monday, May 28 – Friday June 1, 2012*

Venue: Instituto Nacional de Estatística INE, Maputo  
Technical assistance: Centre for World Food Studies SOW-VU, Amsterdam  
Participants: INE (9), UNDP (3), WB(2), SOW-VU (2)

### ***Rationale of the workshop***

INE plays a pivotal role in providing information on development statistics to the government and to the public. The identification and analysis of poverty patterns in its various dimensions is one important task in that respect.

In a recent UN survey about the quality of statistical institutes in Sub-Saharan Africa, INE ranks second, after South-Africa. Indeed, data collection and data processing capacities are well developed at INE. Yet, the capacity of the institute to analyse the data that it collects is relatively small. The project wants to strengthen this analytical capacity through a training and research collaboration, in line with INE's own initiative to create a department with specific analytical capabilities. The workshop was the first in a series of four. The second workshop will be held at SOW-VU and the third and fourth again at INE.

## *Overview*

The workshop comprised five days and entailed a mix of theoretical presentations and hands-on computer instructions. Changes were made in the provisional agenda in response to differences in the interests and analytical skills of individual participants.

During Day 1, the objectives of the workshop were discussed, the data sources used during the training were identified and the focal poverty variables were selected. The participants introduced themselves, indicating their educational background and their expectations for the training. The main expectation was that the workshop could help INE to produce its own poverty statistics from the wide array of survey and census data that the institute collects.

Day 2 consisted of an introduction to the software, highlighting its use as a data platform that can blend information from surveys, censuses and GIS maps. This was illustrated by a exercises to process raw data and to plot maps at a pre-specified administrative subdivision.

In the morning of Day 3, two presentations were given on poverty regressions methodologies, a theoretical and an empirical one. The theoretical presentation reviewed different methodologies to estimate the policy response of poverty patterns and identified ways to minimize the bias of the estimated response. The empirical presentation presented initial results produced by applying the World Bank poverty mapping software.

Activities in the afternoon of Day 3 concerned hands-on training in data processing and data analysis with the aim of producing poverty maps at the level of Mozambique's 145 districts. This continued into Day 4 and the participants produced a first series of district maps with poverty indicators. During Day 4, policy questions and research topics were discussed. One area of research would be the evolution of the MDGs over time, say between the 1997 and the 2007 Census, and over space, say at the level of posto administrative. Can the relative performance be associated with certain spatial policies?

At the last day, Day 5, stock was taken of what was learnt, while it was discussed how to proceed. The participants indicated that the workshop was a success, because it showed how INE can improve its poverty statistics through the (spatial) analysis of data from the surveys and the censuses that it collects. Moreover, it opens possibilities to link poverty to geographical data such as climate, soil fertility and infrastructures.

As regards INE's priorities for capacity building at the next workshops in the project, this inclusion of geographic data is one issue. Also, a need was felt for a concise manual of the main functions of the GRCP software. What is more, due attention should be given to the processing of the raw data from the surveys and censuses before they are analysed within the GRCP platform. The latter was considered particularly important because INE-staff as well as the other participants want to learn how to construct various poverty indicators at individual, household and aggregated levels from the raw data and how to prepare data-sheets for further analysis with GRCP. In that regard, collaborative research within the project could focus on an assessment of MDG related statistics. How have these statistics evolved between the 1997 and the 2007 population censuses? And between the 1997, 2003 and 2009 IOF sueveys? By the same token, research was proposed as to how, for example, consumption, malnutrition, education, health, gender equality and asset ownership are distributed over the population, the provincia, the distrito, and the posto administrativo. Finally, through establishing a connection between the MDGs patterns and certain (spatial) policies, participants in the project may put themselves in a position to evaluate the policy response of poverty patterns.

### ***Participation***

The workshop was attended by 16 participants, namely 9 from INE, 2 from the World BankB, 3 from UNDP and 2 from SOW-VU, while the Dutch Embassy was represented during the last day in the person of Christine Pirenne.

#### **INE:**

Saide Dade, Monica Magaua, Amosse Ubisse, Pedro Duce, Felicidade Pires,  
Laura Duarte, Manuel Magaia, Jeremias Guambe, Helder Mabai

#### **WB:**

Vasco Molini and Peter Fiskers

#### **UNDP:**

Thomas Kring, Ellen Aaboe and Manuel Filipe

#### **SOW-VU:**

Bart van den Boom and Boualem Rabta

### ***Agenda***

Time	Subject	Chair / Presenter
<b>Monday, 28/5</b>	<b>Day 1: Objectives, data sources, focus, policy questions</b>	<b>Chairman: Dade</b>
<b>9:30-10:30</b>	<b>Welcome and introduction of participants</b>	<b>Dade</b>
	<i>Emphasis on interests and analytical skills and expectations</i>	
10:30-10:45	<i>Break</i>	
<b>10:45-12.30</b>	<b>A. Objectives of the training</b>	<b>Boom</b>
	<ol style="list-style-type: none"> <li>1. Create a data platform that can blend information from surveys, censuses and GIS maps</li> <li>2. Use the platform to produce maps and tables that show the poverty patterns</li> <li>3. Start exploring correlations and estimating the policy response of poverty patterns and profiles</li> <li>4. Identify topics for joint research reports and select participants for advanced training in Amsterdam</li> </ol>	
12:30-13:30	<i>Break</i>	
<b>13:30-17:00</b>	<b>B. Data sources and focus poverty variables</b>	<b>Boom</b>
	<p><i>Administrative map</i></p> <ul style="list-style-type: none"> <li>- <a href="http://www.gadm.org">http://www.gadm.org</a>: 11 Provincia (code R), 145 Distrito (code PV) and 410 Posto Administrativo (code CN), put on a raster of 30 arc-seconds, i.e. with cell-sizes of around 0.8 km squared.</li> </ul> <p><i>Population map for the year 2000 (30 arc-seconds raster)</i></p> <ul style="list-style-type: none"> <li>- <a href="http://sedac.ciesin.columbia.edu/">http://sedac.ciesin.columbia.edu/</a></li> </ul> <p><i>IOF survey data (1997, 2003, 2009) and Census (1997, 2007)</i></p> <ul style="list-style-type: none"> <li>- Data sets need to be made operational on the map, at the best possible geo-reference. The exact latitude and longitude of the households would be ideal (and for some surveys like the recent DHS, this information is available). For IOF and Census, the location of household at the Provincia and Distrito level is available. The Posto Administrativo would be preferable. Can we use this level</li> </ul>	

	<p>during this workshop?</p> <p><i>Additional survey data and GIS data</i></p> <ul style="list-style-type: none"> <li>- Additional surveys available at INE (e.g. DHS, TIA, MICS) and maps (e.g. GIS climate, infrastructure) to be added in a later stage.</li> </ul> <p><i>Focus poverty variables</i></p> <ul style="list-style-type: none"> <li>- Income and consumption patterns, from IOF</li> <li>- child malnutrition patterns, from IOF</li> </ul> <p><i>Focus explanatory variables (poverty correlates)</i></p> <ul style="list-style-type: none"> <li>- variables from the IOF, also available in the Census</li> </ul>	
<b>Tuesday, 29/5</b>	<b>Day 2: Introduction to the software and exercises</b>	<b>Chairman: Boom</b>
<b>9:30-10:45</b>	<b>Presentation of GRCP as a data platform and an analysis tool</b>	<b>Rabta</b>
	<p><i>Structure of the data platform and data handling</i></p> <ul style="list-style-type: none"> <li>- Survey frame (HID, CN) and map (LAT, LON, CN, PV, R)</li> <li>- File formats and management</li> <li>- GAMS program</li> </ul> <p><i>Functionalities of the software</i></p> <ul style="list-style-type: none"> <li>- Gridding</li> <li>- Regression</li> <li>- Classification</li> <li>- Polling, Matching, Treatment effect</li> <li>- Plotting</li> </ul> <p><i>Related software</i></p> <ul style="list-style-type: none"> <li>- Statistics &amp; regression: SAS/STATA/SPSS (+STATTRANSFER)</li> <li>- Geographic Information System (ILWIS/ACRINFO)</li> <li>- Child malnutrition Z-scores (WHO)</li> <li>- Poverty map software (World Bank)</li> </ul>	
<i>10:45-11:00</i>	<i>Break</i>	
<b>11:00-12:30</b>	<b>Exercises: Processing data on input and plotting population maps</b>	<b>Boom</b>
	<p><i>Processing data on input</i></p> <ul style="list-style-type: none"> <li>- Administrative map, Population map 2000, selected variables from the Census 2007 and from the IOF 2009 (the latter includes malnutrition and consumption variables)</li> </ul> <p><i>Hands-on training: plotting population maps</i></p> <ul style="list-style-type: none"> <li>- Plot the population density during the 1997 and 2007 Census at Posto-Administrativo CN level (or at Distrito level, if geo-reference does not contain CN)</li> <li>- Compute population growth 1997-2007 (CN-level)</li> <li>- Compute and plot the population density of 2012 (CN-level)</li> <li>- Plot the population density 2000 (30-arcsec level)</li> <li>- Use the 30-arcsec density to refine CN density map 2012</li> </ul>	
<i>12:30-13:30</i>	<i>Break</i>	
<b>13:30-17.00</b>	<b>More hands-on training: computing and plotting maps</b>	<b>Boom &amp; Rabta</b>
	<p><i>Consumption</i></p> <ul style="list-style-type: none"> <li>- Put average consumption in 2009 on a poverty map</li> <li>- Do the same for other variables, for example calories; food</li> </ul>	

	share in total food; autoconsumo-share in total consumption etc.) <i>Malnutrition</i> - Compute average HAZ-scores and plot a 2009 stunting map - Do the same for underweight WAZ-scores <i>Other maps of interest?</i>	
<b>Wednesday,30/5</b>	<b>Day 3: Regression techniques, poverty profiles, poverty maps</b>	<b>Chairman: Boom</b>
<b>9:00-10:45</b>	<b>Regression techniques and the problem of the bias</b>	<b>Rabta</b>
	<i>The potential bias of multivariate regression</i> <i>How to address the bias?</i> - Properties of Least Squares - Instrumental Variables 2SLS - Matching, with emphasis on matching nearby on the map ( Propensity Score, Nearest Neighbor, Kernel Matching) - Trade-off between bias and precision	
<i>10:45-11:00</i>	<i>Break</i>	
<b>11:00-12:30</b>	<b>Poverty mapping software of the World Bank</b>	<b>Fiskers</b>
	<i>Regression on the 2008 IOF survey; extrapolation on the 2007 Census</i>	
<i>12:30-13:30</i>	<i>Break</i>	
<b>13:30-16.30</b>	<b>Hands-on training: District poverty maps</b>	<b>Rabta &amp; Boom</b>
	<i>Correlates of the selected household poverty variables (namely, HAZ score and consumption) in the IOF 2009 and in the Census 2007, e.g.</i> - Source of drinking water - Source of lighting - Educational attainments - Employment - Access to health care - Condition of the housing - Household durables and assets  <i>Compute and plot poverty maps</i>	
<b>Thursday, 31/5</b>	<b>Day 4: Start plotting maps and assessing policy responses</b>	<b>Chairman: Boom</b>
<b>9:00-11:30</b>	<b>What would have happened to the “treated” without treatment?</b>	<b>Rabta/Boom</b>
	<i>According to OLS Regression</i> <i>According to 2SLS Instrumental Variables estimation</i> <i>According to Matching Techniques</i>  <i>Can a correlation be interpreted as a causation? For example:</i> <i>Should one drink more coca-cola because it makes you rich according to the correlation between drinking cola and being rich?</i>  <i>Should bread consumption be promoted because it could make children grow better according to a negative correlation between consuming bread and stunting?</i>	
<b>11:30-12.30</b>	<b>Discussion of policy issues and research topics</b>	<b>Dade/ Boom</b>
	<i>What are the policy questions of interest?</i>	

	<p><i>How have MDGs evolved between the 1997 and the 2007 census?</i></p> <p><i>What differences are observed at distrito-level?</i></p> <p><i>To what extent do MDG patterns respond to the access to education, health and clean water?</i></p>	
12:30-13:30	Break	
<b>13:30-16.30</b>	<b>Hands-on training: First series of district poverty indicators</b>	<b>Boom/Rabta</b>
	<p><i>Working through an example: District maps of stunting pattern and selected correlates such as consumption, education, health, clean water etc.</i></p>	
<b>Friday,1/6</b>	<b>Day 5: What has been learnt, what are INE's priorities, follow-up</b>	<b>Chairman: Dade</b>
<b>9:00-11:00</b>	<b>What has been learned?</b>	<b>Dade</b>
	<p><i>Assessment of the training by the participants</i></p> <p><i>Selection of participants for the training in Amsterdam</i></p>	
<b>11:00-13:00</b>	<b>Conclusion and follow-up activities</b>	<b>Dade/ Boom/Pirenne</b>
	<p><i>Priorities for capacity building at INE</i></p> <p><i>Scope for collaborative research and follow-up training</i></p> <p><i>Topics, ideas and teams for co-authored research reports</i></p>	