



## Mission Report

from a short-term mission on a model for predicting poverty

*from November 25 to December 9 2005*

**TA for the Scandinavian Support Program to Strengthen the Institutional  
Capacity of the National Statistics, Mozambique**

*Geir Øvensen, Statistics Norway*

*Astrid Mathiassen, Statistics Norway*



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Instituto Nacional de Estatística

Geir Øvensen  
Senior Statistical Adviser, Statistics Norway  
PO Box 8131 Dept, NO-0033, Oslo, Norway  
E-mail: [gov@ssb.no](mailto:gov@ssb.no)  
Telephone +4721094284

Astrid Mathiassen  
Senior Statistical Adviser, Statistics Norway  
PO Box 8131 Dept, NO-0033, Oslo, Norway  
E-mail: [mss@ssb.no](mailto:mss@ssb.no)  
Telephone +4721094226

## Table of contents

1	EXECUTIVE SUMMARY .....	5
2	INTRODUCTION .....	8
3	ACTIVITIES DURING THE MISSION .....	9
4	RECOMMENDATIONS .....	13
5	APPENDIX 1. Persons met .....	15
6	APPENDIX 2. List of Literature .....	17
7	APPENDIX 3. Programme for the Mission.....	18
8	APPENDIX 4. Terms of Reference.....	20

## List of abbreviations

CO	Scanstat Coordination Office in Statistics Denmark
Danida	Danish International Development Assistance
DKK	Danish Kroner
DSt	Statistics Denmark
EUR	European Euro
INE	Instituto Nacional de Estatística, Mozambique
INE-P	Instituto Nacional de Estatística, Portugal
MZM	Mozambique Meticais
NOK	Norwegian Kroner
Scanstat	Consortium between Statistics Denmark, Statistics Norway and Statistics Sweden
SCB	Statistics Sweden
SEK	Swedish Kronor
SSB	Statistics Norway
USD	US Dollars
ZAR	South African Rand

## 1 EXECUTIVE SUMMARY

Mr. Geir Øvensen and Dr. Astrid Mathiassen, both senior statistical advisers in the division for development cooperation at Statistics Norway have conducted a mission on poverty analysis at Instituto Nacional de Estatística (INE), Mozambique. Mrs. Fátima Zacarias, Director of Demographic and Vitals Statistics (DEMOVIS) at INE was the counterpart for the mission.

The increased demand for more frequent measurement of poverty, typically for *annual* poverty estimates has generated the need for a supplement to the costly, full-fledged Household Income and Expenditure Surveys, which are usually only conducted every 5<sup>th</sup> year. Statistics Norway has developed a procedure for predicting poverty in years when no comprehensive household expenditure is available. Because the approach is based on the use of data from a "Light" household survey, it represents a cost-effective supplement to the poverty modeling that is done from the household budget surveys (IAF). The specific goal of the current mission was to predict poverty for Mozambique in 2004-2005 on basis of the latest household expenditure survey (IAF 2002/03), and the labour force survey (IFTRAB 2004/05), but the method can also be applied to *future* light surveys. Due to the complexity of the work to be undertaken, it was agreed with INE that a fairly limited number of persons should participate in the workshop, which had the following aims:

1. To familiarize the participants with the idea and the procedure.
2. To construct a consumption model for predicting consumption from the IAF 2002/03 household income and expenditure survey and predict the 2004-05 poverty headcount ratio from the IFTRAB 2004-05 labour force survey.
3. To estimate the uncertainty in the predicted 2004-05 poverty headcount

On 2. and 3: above the SPSS statistical package SPSS was used to allow for hands-on training of the workshop participants.

At the first work-day of the mission, Mr. Øvensen presented the general idea behind the approach for the workshop participants. Practical, hands-on work with SPSS started on Monday 28<sup>th</sup>. The workshop participants jointly identified the set of questions/ variables that appeared both in the IAF and the IFTRAB surveys. Then, work started to prepare the household level SPSS file from the part of the IAF that appeared in the joint set. The workshop participants took part in every *qualitative* stage in the construction of the file, i.e. at each stage to discuss how to solve the programming challenges. It should be emphasized that the participants actively participated in the discussions. Many improvements were done due to sharp observations of the workshop participants. The second step was to run a series of bivariate regressions, with the (log of) household consumption expenditure as the dependent variables and a long list of potential candidates (approximately 170) for independent variables. It turned out that one feature of the program is new from SPSS 13.0, which implied that the program did not function on version 12.0, or older versions.

The final step of making the IAF consumption model was to make the multivariate, "stepwise" regression with a selected sub-group of variables from the bivariate regressions, with different independent variables for the urban and the rural model. All procedures involved in making the consumption model from the part of the IAF questionnaire, that also appear in the IFTRAB), has been gathered in one, single syntax file.

Due to lack of time, the Norwegian consultant had to predict the 2004-05 poverty headcount ratio from the IFTRAB 2004-05 labour force survey alone<sup>1</sup>. This procedure should be repeated in an advanced course in poverty analysis. The stepwise procedure is, however, straightforward and we identified variables for each of the four regions in respectively urban and rural areas. The R-square for the urban models is high (around 70-80 percent) in rural areas the models tend to explain less. About 40-50 percent is explained. In both rural and urban areas the limitation to the *common* pool of variables in the IAF and the IFTRAB surveys reduces the R-square, compared to a situation where indicators may be selected *freely* from the IAF. Moreover, for the rural areas, there are two additional challenges: First, rural areas are more economically homogenous than urban areas, which make it more difficult to detect differences. Second, the list of consumer durables is, as is common in many surveys of this type, biased towards, modern, urban consumer durables, rather than items that make it easier to classify rural households<sup>2</sup>. In general, the models do seem to predict a high decline in poverty, which we expect to exaggerate the real situation. This is the reason that this mission report does not include any preliminary headcount estimates. For example for Maputo city poverty is predicted to have gone down with about 12 percent since the IAF. We did not find these results reasonable and started to look for further explanation for these results. We have seen that the number of members in the households is an essential indicator in this context. It has been reduced in Maputo by an average of 1,3 members. The question is whether this decline in the household size is real? By our opinion, it is necessary to follow up these questions and the analyses to possibly improve on the comparability of the survey and the models. When we have predicted the headcount ration it is straightforward to estimate the uncertainty of the predictor following the formulas as derived in Mathiassen (2005).

Several recommendations can be made based on the mission. Our recommendations are as follows:

- The empirical challenges described above concerning the prediction of the 2004-05 poverty headcount ratio from the IFTRAB 2004-05 labour force survey, and the uncertainty of this estimate, should be further investigated. Our assessment is that *one additional work week* by Dr. Mathiassen should be sufficient to identify, evaluate, and to eliminate possible errors in the IAF and/ or the IFTRAB datasets.
- There is a need both to bolster the acquired skills of the workshop participants, and to transfer new competence to the INE staff about

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<sup>1</sup>At this stage the program for this step was written in the SAS statistical package only, and not in SPSS.

<sup>2</sup> For example, in the IAF dataset there was not a single rural household that possessed an air-conditioner or a computer.

this type of work. The workshop participants should be enabled to practice their new knowledge and skills as soon as possible, and preferably working together as a team. The workshop participants may, with some supervision from abroad, construct an "unconstrained" consumption model that can be used to select 10-15 poverty indicators to be added to the next "light survey" in Mozambique.

- There is a range of related work that INE may undertake in the near future. While the first task is fairly demanding technically, our main recommendation is to combine the application of the general approach and method used in the workshop on related areas with supervised, but still independent work by the workshop participants.

We will suggest conducting an advanced course in poverty analysis to follow up and integrate these activities.

## 2 INTRODUCTION

Mr. Geir Øvensen and Dr: Astrid Mathiassen, both senior statistical advisers in the division for development cooperation at Statistics Norway have conducted a mission on poverty analysis at Instituto Nacional de Estatística (INE), Mozambique. The counterpart for the mission was Mrs. Fátima Zacarias, Director of Demographic and Vitals Statistics (DEMOVIS) at INE.

The Scandinavian project aims in general at assisting INE in collecting, processing, analyzing and disseminating good quality data on the status and development of the economy and the living conditions in Mozambique. The Ministry of Planning the donors, and researchers need both macro- and micro data to analyze and assess the development in the indicators of the new Mozambique Poverty Reduction Strategy (PARPA/MPRS). The current short-term mission on a model for predicting poverty is an important part of this endeavour.

Both the monitoring of the MPRS, and the monitoring of the Millennium Development Goals (MDG) have increased the demand for more frequent measurement of poverty, typically for *annual* poverty estimates. Traditionally, poverty measurement has been based on heavy duty, full-fledged Household Income and Expenditure Surveys. However, conducting such surveys are costly, both in terms of money and administration. Hence, in most developing countries they are usually only conducted every 5<sup>th</sup> year.

In response to this demand for more frequent poverty data, Statistics Norway has developed a procedure for predicting poverty in years when no comprehensive household expenditure is available. Because the approach is based on the use of data from a "Light" household survey, it represents a cost-effective supplement to the more extensive poverty modelling that is done from the household budget surveys (IAF).

Before proceeding with the activities undertaken during the mission, the team would like to express its sincere thanks to all officials and individuals we met, and for the kind support and valuable information which we received during our stay in Mozambique, and which highly facilitated our work. It should be mentioned, that this report contains the views of the consultants, which do not necessarily correspond to the views of Danida or INE.

### 3 ACTIVITIES DURING THE MISSION

The objective of the mission was to enable INE to produce poverty estimates for years when no expenditure survey is available, but a light survey is conducted. The specific aim of the current mission was to predict poverty for Mozambique in 2004-2005 on basis of the latest household expenditure survey (IAF 2002/03), and the labour force survey (IFTRAB 2004/05), but the method can also be applied to *future* light surveys,.

The mission was conducted as a workshop, which took place in the 9<sup>th</sup> floor of the INE headquarter in Maputo. Due to the complexity of the work to be undertaken, it was agreed with INE that a fairly limited number of persons should participate. The workshop had the following aims:

1. To familiarize the participants with the idea and the procedure.
2. To construct a consumption model for predicting consumption from the IAF 2002/03 household income and expenditure survey
3. To predict the 2004-05 poverty headcount ratio from the IFTRAB 2004-05 labour force survey.
4. To estimate the uncertainty in the predicted 2004-05 poverty headcount

On 2. to 4. above the SPSS statistical package SPSS was used to allow for hands-on training of the workshop participants.

#### 3.1 Familiarize the participants with the idea and the procedure.

The first work day of the mission was supposed to be on Thursday 24<sup>th</sup> of November. However, as Mr. Øvensen arrived two days later than planned due to acute illness, the workshop could not start until the afternoon of Friday 25<sup>th</sup>. At this meeting Mr. Øvensen presented the general idea behind the approach for the workshop participants: First, to construct a "consumption model" in order to find 30-40 poverty indicators that are included both in the IAF and the QUIBB, "Light Survey". (These indicators should preferably be **other** variables than expenditure items). Second, to estimate annual regional/ province poverty headcount from the QUIBB, "Light Survey", without having to undertake a full expenditure survey (IAF). The estimate is based on applying the estimated *parameters* from the consumption model to the QUIBB/ IFTRAB, "Light Survey" dataset. Third, to calculate the precision of these estimates. (Due to the change of schedule it was not possible for the management at INE to attend. The powerpoint file with the presentation is enclosed with this report. Slide 8 provides an overview of the approach).

### 3.2 Construct a consumption model for predicting consumption from the IAF 2002/03 household income and expenditure survey

The practical, hands-on work with SPSS started on Monday 28<sup>th</sup>. The first task was to identify the set of questions/ variables that appeared *both* in the IAF and the IFTRAB surveys. The workshop participants jointly conducted this task.

The second task was to prepare a household level SPSS file from the part of the IAF that appeared in the joint set. This posed some additional challenges, because the IAF survey is stored as text data in the MS-Access database. There is a standard procedure for transforming text data into numeric data in the SPSS module that is designed to read from MS-Access databases. However, it turned out that the SPSS command generated from this menu was the "AUTORECODE" command, which transforms text data into a list of consecutive integers. Since the first string on almost all variables was the "No Answer" (missing cases), (indicated as the string "?"), the AUTORECODE command only functioned in a narrow, technical sense, but gave wrong number codes on a number of variables. The correct method of transformation was to use the "number (string)" function.

When this problem was solved, the household file from the IAF was generated. The SPSS program which generates the IAF household level data file for the joint IAF-IFTRAB module is called:  
"Mozambique\_SPSS13\_Poverty\_Predictors\_Make\_Household\_File.sps".

This program first reads the "HHDData" table from the MS-Access database "IAF 2002Data.mdb". Then the "INDData" table with individual data is read, transformed and aggregated up to the household level. Next comes the "BD" table with the consumer durables, also from the MS-Access database "IAF 2002Data.mdb".

Finally, these three files are joined with a file containing the poverty lines and aggregate consumption data (obtained from the group working with Mr. Arndt Channing), and a file with information about the IAF survey clusters (AEs), such as the "agro-ecological zones" in the rural clusters, and "socio-economic classification" in the urban clusters. The resulting file with all the household-level data information from the IAF is called "Hhdata2.sav".

Although the workshop participants did not participate in the construction of *all* new variables or procedures in making the "Hhdata2.sav" data file, they took part in every *qualitative* stage in the construction of the file, i.e. at each stage to discuss how to solve the programming challenges. It should be emphasized that the participants actively participated in the discussions. Many improvements and much problem solving were done due to sharp observations of the workshop participants.

It was an intended aspect of the mission *not* to present the workshop participants for ready-made program files, where there would be little participatory involvement in solving problems. On the contrary, it was an explicit aim to involve the participants in the process of problem detection,

problem solution, and quality check, as it is commonly done at an early stage in SPSS programming.

The second step was to run a series of bivariate regressions, with the (log of) household consumption expenditure as the dependent variables and a long list of potential candidates (approximately 170) for independent variables. Based on experiences from other African countries, we deemed it essential to make separate models for urban and rural localities<sup>3</sup>. This step is documented under the SPSS syntax filenames:

"Mozambique\_Poverty\_Predictors\_Bivariate\_Regressions\_V13.sps"  
(National)

"Mozambique\_Poverty\_Predictors\_Bivariate\_Regressions\_Urban\_V13.sps"  
"Mozambique\_Poverty\_Predictors\_Bivariate\_Regressions\_Rural\_V13.sps".

These files run the 170 bivariate regressions automatically. The program is neither dependent on the names of the variables that appear as candidates for the bivariate regressions, nor the total number of candidate variables. The program generates a new datafile, listing the variable names, the R-square for each bivariate regression and other relevant information to judge their performance<sup>4</sup>.

A key feature of the program is that a list with names of the potential independent variables is read from an SPSS output "pivot table" and transformed into a new SPSS data file. However, it turned out that this feature is new from SPSS 13.0, which implied that the program did not function on version 12.0, or older versions<sup>5</sup>.

The final step of making the IAF consumption model was to make the multivariate, "stepwise" regression with a selected sub-group of variables from the bivariate regressions. Given some preliminary considerations, the stepwise method automatically selects the best set of independent variables to *jointly* appear in the regression. However, exactly *which* variables are included is quite strongly dependent on relatively small changes in the input: If only one independent variable is taken out as input, the whole set of independent variables selected at the end of the stepwise regression changes quite substantially<sup>6</sup>.

What remained after some experimentation was that the stepwise regression procedure yielded different independent variables for the urban and the rural model. The urban variables were mainly knit to ownership of various

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<sup>3</sup> However, a national model was also made, mostly to test out the workings of the program on the full dataset, since all households are included in this case.

<sup>4</sup> However, the SPSS program is vulnerable towards the case of 100% missing on a variable for the sub-population in question. For example, in the IAF dataset there was not a single rural household that possessed an air-conditioner or a computer. Hence, it must be manually checked that none of the candidates have the missing value for *all* cases in the (sub-) sample.

<sup>5</sup> Hence, SPSS 13.0 was brought from Statistics Norway at the end of the mission. The program was then installed and tested on one of the laptops of the participants during the "Light Survey" workshop on December 12. The program worked well on this computer.

<sup>6</sup> This is an unavoidable feature of the "stepwise" procedure, and only shows the importance of leaving time for experimentation and testing of the consumption model. It should be noted that given the same input, both the "stepwise" procedures in the SPSS and the SAS statistical packages gave the same output.

consumer durables, while the rural model mainly contained independent variables that described the households' size and composition. The various rural models also had much smaller explanatory power with respect to aggregate household expenditure per capita than the urban models<sup>7</sup>. This partially reflects that the rural localities, dominated by self-subsistence farmers, tend to be much more economically homogenous than urban areas. However, the list of consumer durables is, as in many other countries, dominated by "urban" items, which, for example, often require electricity. In future surveys, it should be aimed at finding relevant items also for rural areas, e.g. types of agricultural equipment found among some, but not all self-subsistence farmers.

All procedures involved in making the consumption model from the part of the IAF questionnaire, that also appear in the IFTRAB), has been gathered in one syntax file, the: "Mozambique\_Poverty\_Predictors\_METAFILE.sps". This file both creates the IAF household file, runs the bivariate regressions and, (allowing for manual selection of variables), executes the stepwise, multivariate regression. The file allows for the use of both an urban or a rural model, and (more for testing) a national model.

Finally, the file: "Mozambique\_Poverty\_Predictors\_Make\_IFTRAB\_File.sps" creates an SPSS datafile from the part of the IFTRAB questionnaire that are also found in the IAF. For simplification, all original variables have been renamed, using the IAF questionnaire as the reference, and derived variables have been given exactly the same names as in the IAF based "Hhdata2.sav".

### **3.3 To predict the 2004-05 poverty headcount ratio from the IFTRAB 2004-05 labour force survey.**

As described, during the two weeks of the workshop in Maputo we were able to identify a set of potential indicators, and we did the first trials of running stepwise regression procedures together. Due to lack of time the Norwegian consultant had to continue this work alone. The stepwise procedure is, however, straightforward and we identified variables for each of the four regions in respectively urban and rural areas. The R-square for the urban models is high (around 70-80 percent) in rural areas the models tend to explain less. About 40-50 percent is explained. As mentioned, this is likely to be due to limitation of the *common* pool of variables in the IAF and the IFTRAB surveys.

In other countries we have found that variables capturing whether the household consumed any of various food items, if they used transport, how many meals they had during last week etc. are good and important variables for differentiating between poor and non-poor household in the rural (and urban) areas. We estimated, however, the models by applying the given set of indicators and used these to predict the expenditure per capita and in the

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<sup>7</sup> Regretably, the best performing rural variable, nr. of rooms in the dwelling had to be taken out, because the IAF asked for the number of *divisions* of the dwelling, while the IFTRAB asked about the number of rooms used for *sleeping*.

next instance the likelihood that a household is poor by utilizing the information on the selected indicators from IFTRAB.

In general, the models do seem to predict a high decline in poverty, which we expect to be exaggerated. This is the reason that this mission report does not include any preliminary headcount estimates. For example for Maputo city poverty is predicted to have gone down with about 12 percent since the IAF. We did not find these results reasonable and started to look for further explanation for these results:

We have seen that the number of members in the households is an essential indicator in this context. It has been reduced in Maputo by an average of 1,3 members (the average number of household members is also reduced in other provinces, but not as much as in Maputo). Since demographic variables are among the most important ones, and number of members in household has a strong negative correlation with per capita expenditure, we suspect that the high decline in poverty estimated by our models is due to decline in members in household. The question is then; is this decline in household size real?

One can expect number of members in household to be reduced, in particular in Maputo, due to immigration and modernization, but we suspect that this decline is exaggerated<sup>8</sup>. If the decrease is exaggerated, is it then due to another definition of who is a member or not have been applied in IFTRAB as compared to in IAF, or could it have anything to do with the weighting scheme? By our opinion, it is necessary to follow up these questions and the analyses to possibly improve on the comparability of the survey and the models.

### 3.4 To estimate the uncertainty in the predicted 2004-05 poverty headcount

When we have predicted the headcount ration it is straightforward to estimate the uncertainty of the predictor following the formulas as derived in Mathiassen (2005).

## 4 RECOMMENDATIONS

Several recommendations can be made based on the mission. Our recommendations are as follows:

- The empirical challenges described above concerning the prediction of the 2004-05 poverty headcount ratio from the IFTRAB 2004-05 labour force survey, and the uncertainty of this estimate, should be further investigated. Our assessment is that *one additional work week*

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<sup>8</sup> A high number of labour migrants into Maputo could imply an increasing number of one-person households, and hence, a reduction in the city's average household size.

by Dr. Mathiassen should be sufficient to identify, evaluate, and to eliminate possible errors in the IAF and/ or the IFTRAB datasets<sup>9</sup>.

- There is a need both to bolster the acquired skills of the workshop participants, and to transfer new competence to the INE staff about this type of work. The workshop participants should be enabled to practice their new knowledge and skills as soon as possible, and preferably working together as a team.
- There is a range of related work that INE may undertake in the near future. While the first task is fairly demanding technically, our main recommendation is to combine the application of the general approach and method used in the workshop on related areas with supervised, but still independent work by the workshop participants.
- On the technical side, all computers used for this work should have SPSS 13.0 installed as soon as possible<sup>10</sup>.
- The list of consumer durables is, as in many other countries, dominated by "urban" items, which, for example, often require electricity. In future surveys, it should be aimed at finding relevant items also for rural areas, e.g. types of agricultural equipment found among some, but not all self-subsistence farmers.
- In other countries we have found that variables capturing whether the household consumed any of various food items, if they used transport, how many meals they had during last week etc. are good and important variables for differentiating between poor and non-poor household in the rural (and urban) areas. This should also be considered to be included here.
- The workshop participants may, with some supervision from abroad, construct an "unconstrained" consumption model that can be used to select 10-15 poverty indicators to be added to the next "light survey" in Mozambique.

Based on the last bullet point above, the group may propose a *very limited number* of new poverty indicators to be included in the Census. Alternatively, another "constrained" consumption model may be constructed, now depending on the joint set of variables in the IAF and the Census, rather than in the IAF and the IFTRAB surveys.

A "hands-on" training workshop in the methodology-related technique of "poverty mapping" may be held during the first quarter of 2006

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<sup>9</sup> Checking factors like weighting, household member definitions, etc.

<sup>10</sup> A licenced copy of this version is now available from SN's long-term adviser.

## APPENDIX 1. Persons met

The workshop participants comprised the following persons:

Fátima Zacarias, Director of Demographic and Vitals Statistics (DEMOVIS)  
Cassiano Soda Chipembe, Leader of Division for Data Analysis, DEMOVIS  
Elisio Mazive, Census and Survey (DCI)  
Xadrique Maunze, demographic studies, DEMOVIS

Several other participants participated in parts of the course, i.e. Maria Mazive and Pedro Duce from DEMOVIS and two participants from Ministério da Planificação e Desenvolvimento, Direcção Nacional de Estudos e Análise de Políticas.

Else, the mission met with:

Joao Loureiro, President of INE  
Manual da Costa Gaspar, Vice president, Social & Demographic, INE  
Arndt Channing, Ministério da Planificação e Desenvolvimento, Direcção Nacional de Estudos e Análise de Políticas  
Kenneth Simler, Research Fellow, International Food Policy Research Institute  
Arão Balate, Director, Census and Survey, INE  
Lars Carlsson, Team Leader, Scandinavian Program, INE  
Eugenio Matavele, Data Processing, INE  
Bruno Rodolfo, Programmer of Survey, INE  
Karsten Bormann, Scanstat resident advisor



## APPENDIX 2. List of Literature

Elbers, C., Lanjouw, J.O. and Lanjouw, P. (2003): "Micro Level Estimation of Poverty and Inequality" *Econometrica*, Vol. 71, No. 1.

Mathiassen, A. (2005): "A Statistical Model for Simple, Fast and Reliable Measurement of Poverty" *Discussion Paper* No. 415, Statistics Norway

### **APPENDIX 3. Programme for the Mission**

The main purpose of the mission was to conduct a workshop on poverty analysis.

The workshop started on Friday the 25<sup>th</sup> of November and ended Friday the 9<sup>th</sup> of December.

During the mission the consultants also had meetings discussing the issue with:

Joao Loureiro, President of INE

Manual da Costa Gaspar, Vice president, Social & Demographic, INE

Arndt Channing, Ministério da Planificação e Desenvolvimento, Direcção Nacional de Estudos e Análise de Políticas

Kenneth Simler, Research Fellow, International Food Policy Research Institute

Lars Carlsson, Team Leader, Scandinavian Program, INE

Following directly after the workshop INE, The World Bank and Statistics Norway arranged a conference called Light Core Surveys Workshop. The aim was to review and exchange experiences of using 'light' core surveys or modules within household survey programmes for monitoring national development programmes. The methodology for predicting poverty used in the mission described in this report was presented at the conference.

## APPENDIX 4. Common IAF and IFTRAB Variables

### IFTRAB 04-05 IAF 02-03

Q4	B1
Q3	B3
Q5	B4
Q10	B5
Q11	B6
Q15	C1
Q16	C2
Q18	C5
Q19	C6
Q20	C7
Q21	C8
Q22	D1
Q23	D2
Q24	D4
Q25	D5
Q26	D6
Q27	D7
Q28	F9
Q30	F14
Q31	F10
Q32	F11
Q33	F12
Q34	F1
Q35	F2
Q37	F6
Q38	F7
QP2A	E2A
QP2B	E2B
QP3	E3
QP16	E8
QP27	E9
QP15	E10

## APPENDIX 5. Terms of Reference

### 4.1 TERMS OF REFERENCE

for a short-term mission on

#### 4.1.1

#### 4.1.2 Analysis and Poverty Modelling

*Within the Scandinavian Assistance to Strengthen the Institutional Capacity of INE/Mozambique, 2003-2007*

24.11 to 9.12.2005

### Background

Statistics Norway has developed a procedure for predicting poverty in years when no comprehensive household expenditure is available. The method represents a cost-effective supplement to the more extensive poverty modelling that is done in relation to the household budget surveys (IAF). The model can satisfy a user demand for more frequent reporting of poverty rates.

### Objectives

The main objective is to enable INE to produce poverty estimates for years when no expenditure survey is available: To predict poverty for Mozambique in 2005 on basis of the latest household expenditure survey (IAF 2002/03 and the labour force survey (IFTRAB 2004/05).

The principle is to identify a small set of *indicators* and *estimate per capita expenditure* from the latest IAF. The QUIBB- indicators are collected again through the IFTRAB, and they can be used to estimate the *number of people* living in poverty the year IFTRAB is conducted. The results will be available for urban and rural areas and at the provincial level.

The core of the mission is a hands-on workshop, using SPSS in a regression-based approach to estimate the percentage of the population living in poverty. The participants will learn how to do the calculations by doing them in cooperation with the consultants.

## **Benefactors of the mission**

All parties interested in the development of the poverty situation in Mozambique; The Mozambican government, the donors, researchers and INE.

## **Names of Consultants and Counterpart**

Consultant: Dr. Astrid Mathiassen and Mr. Geir Øvensen

Counterparts: Fátima Zacarias

## **The Mission Schedule**

Mr. Geir Øvensen will present the general idea behind the calculations in a seminar on Friday 25<sup>th</sup> of November for the management at INE and the course participants. The seminar will start giving the general perspectives to both the management and the participants, to continue with a more thorough introduction for the course participants.

The work will be done in a workshop lasting two weeks, from the 28<sup>th</sup> of November until the 9<sup>th</sup> of December.

The first week of the workshop will be lead by Mr. Geir Øvensen. The second week will be lead jointly by Mr. Øvensen and Mrs. Astrid Mathiassen.

Mr. Øvensen will start preparing the workshop in Maputo on the 24<sup>th</sup> of November. Dr. Mathiassen will arrive in Maputo the 3<sup>rd</sup> of December.

In addition to the work done in Maputo, the Consultants will need 13 days to prepare the workshop, analyze data from IAF 2002/03 and IFTRAB 2004/05 and to prepare the model to be used at the workshop. These days also include the time needed to fulfill administrative tasks and to write a mission report.

## **Work to be carried out by the consultants during the mission**

1. Familiarize the participants with the idea and the procedure.
2. Methodological work to combine the IFTRAB 2005 with the IAF 2002/03 for identifying a set of 10-15 variables and estimate a consumption model that can be used to predict poverty for 2005.

## **Tasks to be done by INE to facilitate the mission.**

1. Ensure availability and documentation of data at least 2 weeks before the mission.
2. Ensure staff to participate in the analyses. The staff needs basic knowledge of statistical analyses like regression and to be familiar with SPSS. The participants also have to be able to use English as a working language. The name and qualifications of staff should be informed to the consultant before the start of the mission.
3. Provide a suitable location for the workshop. Two computers with SPSS version 12.0 or newer must be available in the room.
4. Ensure the availability of the participants. There is a lot of work to be done, and it is crucial that the participants are present during the whole workshop.

### **Finalization of the report**

The consultants will prepare a draft mission report to be presented and discussed with INE the second last day of the mission to give time for discussions and changes. They will submit a final draft to INE for final comments within one week of the end of the mission, and return it to Statistics Norway for finalizing one week later. The final version of the mission report will be available within 3 weeks of the end of the mission.

The Counterparts have to ensure that the final printed report has at least a summary in Portuguese if the main report is in English – or vice versa

*These Terms of Reference were prepared by (date and name)*

/ / .....

*Approved by/in the name of the President of INE*

/ / .....