

# **Building a Dissemination Plan**

## **Report on Mission 1 for Mozambique GDDS 2- Agriculture**

**Carried out in Conjunction**

**With**

**Mozambique National Institute of Statistics  
Instituto Nacional de Estatística**

**And**

**Mozambique Ministry of Agriculture**

**Maputo, Mozambique**

**March 2008**

**Prepared by Ernie Boyko**

Draft, April 29, 2008

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## ***Acknowledgements***

I would like to thank the many people who assisted me in carrying out this mission. In particular, I would like to thank Destina Uinge from INE and Aurelio Mate from the Ministry of Agriculture for their liaison support in preparation for this mission and to Destina for arranging the meeting with INE. Many thanks for Domingos Diogo for his advice and guidance. I learned a great deal about Mozambique agriculture and statistics from him. A big thank you to Ellen Payongayong and the TIA team for input and advice regarding what is becoming a key survey for Mozambique agriculture. I would like to thank Chris Hill for support in providing background information on the Mozambique Census of Agriculture, TIA and for helping to plan the next mission to Mozambique. And finally, thank you to everyone with whom I had the pleasure of speaking and who gave feedback after the dissemination seminar. I wish you all the best in your future endeavors.

I would also like to acknowledge the work of Prof. Ben Kiregyera, David Megill, David Eding, Bonifácio José. Their study entitled *A Review Of The National Agricultural Information System In Mozambique*, was an invaluable source of information about Mozambique's agriculture information system.

Ernie Boyko  
[boykern@yahoo.com](mailto:boykern@yahoo.com)  
Ottawa, Canada

## ***List of Acronyms***

**ADP - Accelerated Data Program**

**AP - Aviso Prévio (early warning system for crops)**

**ASCII - American Standard Code for Information Interchange**

**DDI - Data Documentation Initiative**

**DFID - United Kingdom's Department for International Development**

**GDDS - General Data Dissemination System**

**IIAM - Institute for Agricultural Research in Mozambique**

**IHSN - International Household Survey Network**

**IMF - International Monetary Fund**

**INE - Instituto Nacional de Estatística**

**MINAG - Ministry of Agriculture**

**MIS - Management Information System**

**NADA - National Data Archive**

**PARPA - Action Plan for the Reduction of Absolute Poverty**

**PROAGRI - National Programme for Agricultural Development**

**SDMX - Statistical Metadata Exchange**

**SIMA - Agricultural Market Information System**

**TIA - Trabalho de Inquerito Agrícola**

**USAID - United States Agency for International Development**

**XML - Extensible Markup Language**

## ***Executive Summary***

The Instituto Nacional de Estatística (INE) has the overall authority for statistics in Mozambique and has delegated the responsibility for their collection and dissemination to the Mozambique Ministry of Agriculture (MINAG). The Mozambique system of agriculture statistics is based in the first instance on the decennial census of population and housing which had an agriculture module as part of it. This information was used to draw a sample of approximately 23000 agriculture households. The annual agriculture survey, Trabalho de Inquerito Agrícola (TIA) presently has approximately 6000 agriculture households and has been conducted annually since 2002, except for 2004 which was an election year. There are approximately 3.6 million households that carry out some agriculture activities. The TIA carries questions on all agriculture production and inventories each year. Every 3 years carries extended question on services and provides indicators for the National Programme for Agricultural Development and the Action Plan for the Reduction of Absolute Poverty. Administrative data are available from the Veterinary Services Directorate, and the early warning system for crops (*Aviso Prévio*) provides early estimates for crop production. The Market Information group at MINAG collects and publishes commodity information on a weekly basis.

Based on comparisons with the census of agriculture, the TIA performs reasonably well at the national and provincial levels. Estimates at the level of districts, of which there are 94 in the sample, are less reliable. This causes concerns for the Veterinary Services Directorate whose main function is to ensure the health of Mozambique's growing livestock population. They need to have information at the district level to ensure sufficient veterinary supplies. An international study team led by Prof. Ben Kiregyera recommended using the TIA data for the provincial estimates and deriving district level data by applying proportions derived from administrative sources (assuming they are consistent enough for that purpose). This consultant concurs with that recommendation. It was also recommended that the next design of the TIA take the livestock issue into account by using producer lists for surveying larger producers (as a 'take all' strata) and/or re-stratifying the survey to take into account the geographic concentration of the cattle population. The early warning estimates for crop production from *Aviso Prévio* are generally higher than those from TIA that are produced after the harvest is completed.

It is clear that one of the main challenges for the TIA is to strengthen its dissemination function. In this regard the following recommendations have been provided: That MINAG start creating reports and official statistics from TIA ; publish estimates based on the analysis of related data sets and place a greater emphasis on analytical capability within the ministry; document and archive the TIA survey datasets using tools available from the International Household Survey Network and implement an output database for aggregate data; implement a metadata system such as <ddi>; and establish a microdata dissemination policy for the distribution of TIA datasets.

It is recommended that the next mission provide a general overview of agriculture statistics in the form of a course for existing and new staff. This mission is planned for November of 2008.

## ***Preface: Background for the Mission***

The origins for this mission arise from the work of the World Bank and the International Monetary Fund (IMF) who have implemented a three-year project to support the more effective design, implementation, and monitoring of macroeconomic policy and poverty reduction strategies. One of the major strategies to achieve this is helping to strengthen the capacity of national statistical systems in participating countries. It is structured around the IMF's General Data Dissemination System (GDDS)<sup>1</sup> and is financed by a grant from the United Kingdom's Department for International Development (DFID).

Mozambique, both the Instituto Nacional de Estatística (INE) and the Ministry of Agriculture (MINAG), participated at the GDDS agriculture statistics launch seminar held in Maputo in March 2007. The aim of the agricultural statistics module is to assist the participating countries to improve the coverage and quality of different aspects of statistics on agriculture, food and fisheries. Each country identified its own priorities to develop a work program for data improvements that will be implemented over the life of the module.

### **Mozambique identified the following three priorities:**

- To improve methodologies for livestock statistics.
- Continue to improve technical capacity for data analysis.
- To improve the dissemination, publication and use of the results of the surveys.

This report concerns the outcome of the mission aimed at improving livestock statistics. Since the priorities were changed at the outset of the mission, this report also presents the topics that were part of a seminar on the planning of data dissemination.

## ***Preparations for the Mission***

The terms of reference for this mission were based on the report from the launch seminar. The staff of the INE provided access to a report prepared by an international team of statistical experts. The consultant met with known livestock statistics experts and survey sampling methodologists in Canada. A detailed report on the methods and processes used for livestock statistics was obtained and provided to MINAG.

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<sup>1</sup> More information about the GDDS is available on the IMF's Data Standards Bulletin Board at <http://dsbb.imf.org/Applications/web/gdds/gddshome/>

A checklist of items to be reviewed with the team at the MINAG was prepared. The structure of the livestock industry (as portrayed by the most recent census of agriculture) was studied and a paper on Mozambique Agriculture Surveys located at <http://www.fao.org/es/ESS/meetings/AFCAS17/ECountryPapers.htm> was also reviewed. Finally, a preliminary agenda was prepared for the initial meeting with the MINAG staff. The initial and final terms of reference for this mission are shown in Appendix A

## ***Review of the Mission Findings***

### **Responsibility for Statistics**

The Instituto Nacional de Estatística (INE) is the National Statistical Organization for Mozambique ( Statistics Act-Law No. 7/96). While INE has the overall responsibility for statistics in Mozambique, the responsibility for collecting agriculture statistics has been formally delegated to the Ministry of Agriculture. INE and MINAG work closely together on the Census of Agriculture which is the main underpinning for agriculture statistics in Mozambique. The relationship between the two organizations appears to be quite good. MINAG supplies survey data to INE via a CD-ROM which is produced after each survey. INE uses this information to calculate the contribution of the agriculture sector to the national Gross Domestic Product. The latest census of population for Mozambique is currently being processed by INE. It will form the basis for the next census of agriculture.

### **Main Agriculture Survey Activities and Administrative Sources**

The main agriculture survey is the **Trabalho de Inquerito Agrícola (TIA)**. It is a national probability survey that was conducted in 1996, 2002, 2003, 2005, 2006 and 2007. No survey was conducted in 2004 as it was an election year. The TIA is constructed in a similar manner to the agriculture census but the sample size is smaller; it currently samples a little over 6200 households selected in area based sample segments located in 94 sample districts.

There are two different sets of questions on TIA. **TIA light** collects current agricultural data for on agricultural production, area devoted to crops and livestock inventories. Every 3 years, **additional questions** cover such areas as access to services, credit, remittances and pensions, vegetables and other crops, fruit trees, cashew and coconut trees, more detail on livestock and food security and household vulnerability are asked on the survey.

TIA is the source of data on indicators for use by the PROAGRI (National Programme for Agricultural Development) and the PARPA (Action Plan for the Reduction of Absolute Poverty).

The Directorate of Economics receives support from **Michigan State University (MSU)** under a grant from the United States Agency for International Development (USAID). There are 2 long-term advisors who are an integral part of the Directorate of Economics and the Institute for Agricultural Research in Mozambique (IIAM) and whose support is very important for the TIA. The role of the advisors is to help build increased capacity to collect, process, analyze and disseminate information.

The **Department of Early Warning** within MINAG undertakes a Crop Forecast Survey (*Aviso Prévio*) in order to provide crop forecasts on a timelier basis than is possible using the TIA. , The *Aviso Prévio* involves three field visits to sample farms and involves crop area measurement and crop cutting to estimate yields. The *Aviso Prévio* sample is not integrated into the TIA sample.

The *Aviso Prévio* and the TIA are both used to produce estimates for crop production. These data are very important for Mozambique as they measure food production and thus are important for assessing food security. While the *Aviso Prévio* estimates (which are produced much earlier than the TIA estimates) are generally higher than those from TIA; in 2005 there was a 67% discrepancy. This raised concerns about the quality of agriculture statistics and resulted in a review of Mozambique agriculture information by an international team led by Prof. Ben Kiregyera.<sup>2</sup> This study provides an excellent review of the issues involved in the production of agriculture statistics in Mozambique. **Appendix C** contains a list of agriculture survey activities carried out in Mozambique. It is taken from the report prepared by the Kiregyera team.

## **Livestock Statistics**

Information on livestock populations (other than the data from TIA) comes from administrative sources. The Directorate of Veterinary Services maintains a frame of livestock producers with a cattle headcount that is updated periodically. The Directorate of Veterinary Services is a key user of livestock data and requires information at the district level for programming and operations e.g. disease control.

The Directorate of Veterinary Services uses the TIA and also has information on livestock producers (*arrolamento*) which can provide head counts of cattle numbers every few years. The methodology used to collect this information and its consistency over time could not be verified without discussions with the Veterinary Directorate. The lack of reliable livestock information at the districts level has been

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<sup>2</sup> Prof. Ben Kiregyera, David Megill, David Eding, Bonifácio José, (2007) *A Review Of The National Agricultural Information System In Mozambique*, unpublished report available from the Mozambique Ministry of Agriculture or from the Instituto Nacional de Estatística

raised as an issue by The Directorate of Veterinary Services. Prof. Kiregyera's study also addressed this issue.

## **Market Information**

The Economics Directorate has an active market information service (Agricultural Market Information System- SIMA). Prices are reported from a number of areas and markets on Mondays and the results are published on Wednesdays. Radio broadcasts remain the most common source of market information for the sellers of commodities.

## **Change in Mission**

The initial focus for this first mission to Mozambique was to review livestock statistics methodologies to address the issues raised above. In order to address the issues raised, the consultant prepared a work plan to address the issue of livestock statistics. See Appendix A. This proposal was discussed with the agriculture GDDS coordinator (Mr. A. Mate) the following day. It was mutually agreed that in light of the report that had been prepared by a team led by Prof. Kiregyera, it was premature for yet another consultant to interview livestock statistics users.

Accordingly, the work of the mission was redirected to priority 3 which was **to improve the dissemination, publication and use of the results of surveys**. As the consultant had already formed a preliminary view of the issues concerning livestock statistics, a brief set of findings and recommendation on this subject are included in this report.

## **Dissemination**

An initial discussion of the dissemination objective was held with Mr. Mate. Based on this, the consultant prepared an outline of topics that would be covered. This included a seminar to be attended by MINAG and INE staff.

### **The proposed seminar topics:**

- The relationship between dissemination and organization's mandates/objectives
- How to engage users and assess their needs
- The role of metadata and different approaches to producing and disseminating data and metadata
- A user driven approach to data formats
- Data delivery options

- Long term access and archiving data sets
- The role of paper publications in the dissemination process
- Strategies for 'smart publishing'
- Follow-up and evaluation

This outline was accepted as a starting point for a discussion on dissemination. The remainder of the mission was spent talking to MINAG staff and preparing a seminar on the dissemination of agriculture data. A meeting was also held with some of the staff of INE. The notes for the presentation are found in Appendix D.

## **Major Users of Agriculture Statistics**

The following list of major users was compiled by the consultant based on conversations with the staff of the Statistics Department.

- Ministry of agriculture (policy, production support).
- Minister of Agriculture and Cabinet of Ministers (the Minister needs to convince his cabinet colleagues about agriculture priorities).
- The Ministry for Planning and Development
- Ministry of Commerce
- Instituto Nacional de Estadística (to compile estimates of Gross Domestic Product)
- Technical Secretariat for food and nutrition Security
- Economics Directorate (as the authors of policies and plans)
- Planning/MIS (for planning, monitoring and reporting on the agriculture sector)
- Livestock division (to develop and evaluate livestock policies)
- Crops division (to develop and evaluate crops policies, food security)
- Veterinary services (to have sufficient information to maintain the health of livestock populations)
- Agriculture services (to plan and target services)
- Extension services (to plan and target services)
- IIAM (to plan and evaluate research programs)
- Provincial directorates of Agriculture
- Provincial and district offices
- Cashew and Cotton Institutes
- Universities
- International organizations
- NGOs

## **TIA Dissemination:**

The team responsible for the TIA produces a CD-ROM with a series of files on it. These include a SPSS data set with a data dictionary, summary tables of data in Word or PDF documents and overview presentations summarizing the major findings of the survey. Plans are underway for a MINAG web site which would carry summary statistics. A draft of an agriculture year book was being prepared. The survey results are summarized on a survey by survey basis with some time series across surveys.

It was unclear as to how all of the above users acquire the information they need (whether via the CD-ROM or by direct contact with MINAG). Those who were comfortable using SPSS were able to access the dataset and prepare their own tabulations. Those who were not SPSS users would have to rely on tabulations produced by the TIA team or someone else. Of course, having many tabulations produced by various people raises questions as to what the “**official**” estimates for any given topic were.

One of the questions being addressed by the Statistics Department is the balance between paper and electronic dissemination for planned products. It was learned that officials at the province and district level did not have very good internet access. Thus electronic products would have to be available on CD-ROM. However, the planned yearbook would be suitable for both electronic (web and CD-ROM) as well as paper (providing that budget to print it is available). Given the possible lack of internet and computer equipment for provincial and district offices, the need for a comprehensive paper product is quite high.

### **Meeting with INE staff**

A meeting with the members of the Economics Statistics Directorate at INE was arranged by Destina Uinge from INE. INE and MINAG work closely together on the Census of Agriculture which is the main underpinning for agriculture statistics in Mozambique. However, since the TIA sample size is smaller than the census, the TIA estimates are generally only reliable at the national and province level. INE had some concerns that the TIA sample did not include all districts and that the questionnaire was quite long. They felt that this could jeopardize survey quality.

A tour of INE’s publishing unit and library was provided. INE has a broad range of publications that can provide good examples for MINAG to examine.

### ***Findings and Recommendations- Livestock Statistics***

As was pointed out in the study completed by Prof. Ben Kiregyera and his team, the TIA performs reasonably well at the national and provincial levels and should

continue to be the main source of livestock statistics. The 1999-2000 census shows that cattle are only found on 4% of the holdings (whereas goats were found on 28%, pigs on 20% and chickens on 70%). In addition, cattle are concentrated in the southern and central provinces. This makes them very difficult to survey using a sample based on the number of agricultural holdings. Experience in other countries has shown that as livestock populations become more concentrated, general purpose area frame samples will perform less satisfactorily and such samples will have to be augmented with lists.

**Recommendations:** It is recommended that the TIA continues to be the source of national and provincial level livestock data and that other means be found to establish estimates at the district level.

- To develop district level estimates, one approach may be to use the *arrolamento* (administrative data) to distribute the provincial TIA estimates into district level estimates (assuming that a review of the *arrolamento* methodology shows that there is consistency across districts). This would be a modeling approach used to create synthetic estimates.
- The national and provincial estimates can be boosted by implementing the recommendation made by the Kiregyera study. This would involve creating a list of larger cattle producers and include them in a 'take all' strata which can be used to improve the estimate. Based on a list of cattle producers (which can be obtained by doing a pre-listing of holdings, the sampling rate for middle sized operations can be sampled at a higher rate.

It is further recommended that the TIA sampling methodology take account of the livestock issue the next time it is revised. The methodology described in a paper from Mozambique in 2001 outlined an approach which seems very reasonable to the consultant.

*"The proposed survey sample will be a sub sample of the census sample. The sampling process will include an additional step. Each district is classified by its predominate agroecological zone. All the provinces will be subdivided into strata using this classification of districts. The number of zones per province is between two and four. Districts will then be selecting (sic) within each zone/province strata with probability proportional to size defined by the number of households in a district. The population in each stratum will not be equal. The dry zones have much less population. Households in the dry zones where livestock predominates will have a higher probability of selection than households in the wet zones*

*The PSUs selected for the survey in the selected district will be a subset of the Census PSUs. Listing will take place, as in the census, classifying households by holding size. They (sic) basis of this classification will however be modified. The livestock criteria will be lowered. This will*

*ensure a higher coverage of households with livestock. The census data will be used in determining these limits.”<sup>3</sup>*

The TIA team and Mr. Megill (the TIA sampling advisor from USAID) may have other ideas as to how to improve the cattle estimates. Regardless of which approach is used, the estimates will only be solid at the provincial level. District estimates will still have to be made as noted above unless the TIA sample size is increased.

## ***Findings and Recommendations- Dissemination***

### **Introduction**

It is clear that the TIA produces estimates that meet the original objectives established for this survey. The survey is based on the census of agriculture and provides a solid basis for developing national and provincial data series. The main difference between the two surveys is sample size. After talking to a number of users and in the opinion of the consultant, the main challenge for TIA and for the Agriculture Statistics Department is to tackle dissemination and a number of related issues. These are outlined below.

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<sup>3</sup> *Food and Agriculture Statistics in Mozambique*, A Paper Presented At The 17th Session Of African Commission On Agricultural Statistics. Pretoria, South Africa. 27 – 30 November 2001  
Accessed from <http://www.fao.org/es/ESS/meetings/AFCAS17/ECountryPapers.htm> on April 25, 2008. Select Mozambique and see page 5. [This was a Country Paper submitted by Mozambique. The specific author is unknown.]

## **TIA Dissemination and Creation of Official Statistics**

After the TIA surveys have been completed, summary results and the resulting data set have been distributed via CD-ROM. While most major needs have been met in this manner, the survey outputs have not been as visible as they could be. As well, with a number of users extracting data from the SPSS dataset, it is difficult to say what the “official” estimates are. Does every user extract the same subset and perform the same manipulations? It is hard to know.

**Recommendation:** The outputs from the TIA need to be made more visible. The TIA CD-ROM is more like an intermediate product that can be refined to get a broader dissemination of data. A number of options should be considered:

- A specific report should be produced after each TIA. This could show the current and historic data much like some of the Power Point presentations currently produced do, but in more detail for each of the provinces. There is a need to produce a standardized set of tables using standardized procedures.
- Now that a number of surveys have been conducted after the 2000 Census of Agriculture, there are enough data to start creating and publishing official time series. These should be established for each of the major variables whether they are measured every year (on TIA Light) or only every 3 years for the extended TIA.
- Users should be asked what their needs for tabulations and official statistics are. This can be initiated by providing users with sample tables from which they can choose. It is important to distinguish between national users and those whose main focus is provincial.
- The media of dissemination will need to be balanced between electronic and paper products. It is important to develop a good paper product (perhaps like the year book which is in progress) to serve the needs of provincial and district users. All outputs should be on the Web and available on CD-ROM but the content for paper must be carefully selected for cost purposes.

## **Data Analysis and Integration**

The value of survey data lies in its use to support decisions and to add to the knowledge base. This in turn depends on the ability of the data producers and their immediate partners to analyze the survey data and put it into context with related data. Ensuring consistency with related data is also an important aspect of quality. For example, in reviewing cattle estimates from one survey to another, it should be remembered that cattle populations do not swing wildly from one year to the next. Or if they do, there should be some explanation for this. Cows can produce no more than one calf a year (and of course, not all cows will conceive and some calves will

die). Survey numbers should be compared to previous estimates as well as related data such as slaughter numbers and imports and exports.

**Recommendation:** The TIA team and survey analysts should formally declare official estimates for each of the major variables taking into account related data. If necessary, the official estimates can be moved up or down, away from the mid point of the confidence interval (but still staying within the interval) in order to provide consistency and coherence. When TIA results are finally available, previous estimates from other sources should be reviewed. Preliminary estimates from *Aviso Prévio* should be reviewed as part of this context as well. For example, this may affect the food balances.

As well, it was noted that not all the internal users of the TIA data within MINAG had the capability to perform analysis on the survey data using SPSS. Thus, it is recommended that strengthening the analytic capability of the analysts become one of the strategic objectives for the Ministry.

## Data Management-Microdata

Once a number of surveys have been conducted and the number of resulting datasets has increased, a strategy for data management must be considered. This can take a number of forms. It is important to properly document the survey datasets (currently in SPSS) and archive them for future use. Formats such as SPSS are proprietary and the vendors of the software are under no obligation to ensure that new versions of the software are backwards compatible. Thus historic files may become inaccessible over time except by having to expend time and energy in recreating the datasets. Tools and procedures to address this issue are currently the focus of the International Household Survey Network (IHSN)<sup>4</sup> and the Accelerated Data Program (ADP)<sup>5</sup>.

**Recommendation:** It is recommended that MINAG take advantage of the fact that Mozambique (INE) is part of the ADP program and has recently received training (as has a member of MINAG) on the IHSN tool kit for creating survey metadata. With this metadata tool, the metadata are created using standard headings based on the internationally used DDI standard<sup>6</sup> in an XML format<sup>7</sup>. The data can be saved as ASCII files. These can be reformatted to any number of software as necessary.

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<sup>4</sup> See <http://www.surveynetwork.org/home/>

<sup>5</sup> See <http://www.surveynetwork.org/adp/>

<sup>6</sup> DDI stands for Data Documentation Initiative. See <http://www.icpsr.umich.edu/DDI/org/>

<sup>7</sup> See <http://www.softwareag.com/xml/about/starters.htm> One can think about XML as the 'ASCII of the web'.

The IHSN also has a tool called NADA (National Data Archive). An example of its implementation can be found at the Ethiopian Central Statistical Authority.<sup>8</sup> It could serve as a tool to store and provide access to microdata files as well as related reports, metadata, Excel tables and databases. The NADA software is freely available and customizable to meet local requirements. Tomas Bernardo from INE is knowledgeable about these tools.

## Data Management- Aggregate Data

As more and more output statistics become available and are demanded by users, some sort of mechanism (database) will be required to manage these data and to provide access to key users. This can be both a dissemination tool and a data management tool which can feed other dissemination processes.

**Recommendation:** It is recommended that MINAG investigate the possibility of implementing a database to manage its aggregate data and official statistics. There are a number of possible database software that are freely available. DEVINFO<sup>9</sup> is often used in conjunction with the UNICEF Multi Cluster Indicators Survey (MICS). Another one is PC Axis<sup>10</sup> which is distributed by Statistics Sweden. An additional possibility is to adopt a joint database strategy with INE as database development can be expensive.

## Metadata

Good, standardized metadata are essential for helping users understand and properly use statistics. One can think of metadata as documentation to answer the question “what must I tell users to ensure that they can properly understand and use the data that I have provided them?” [In the context of web publishing and the creation of catalogues it can also be used to help users “find” the data by ensuring that the data have proper tags for searching.] This applies to both microdata sets as well as aggregate data, (both time series and data cubes). However, there is not just one standard to apply to data. DDI is commonly used for survey data and is an essential base from which to build. (DDI can be applied to aggregate data but the IHSN tool kit is not tailored to handle this at the moment). SDMX<sup>11</sup> is commonly used for time series information. Its origins go back to a time before the web when institutions first started exchanging data electronically. However, it should not be necessary to build and use two different metadata systems. DDI metadata can be

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<sup>8</sup> See <http://www.csa.gov.et/nada/>

<sup>9</sup> See <http://www.devinformo.org/> or see

[http://www.devinformo.org/factsheets/moz/devinfo\\_country\\_fact\\_sheet\\_moz.htm?IDX=3](http://www.devinformo.org/factsheets/moz/devinfo_country_fact_sheet_moz.htm?IDX=3) for the Mozambique adaptation

<sup>10</sup> See <http://www.ssd.scb.se/databaser/makro/pcaxispgm.asp?lang=2>

<sup>11</sup> See <http://sdmx.org/>

extended to provide support for aggregate data as well as the survey level data. An example of this can be found at the Norwegian Health Institute at <http://www.norgeshelsa.no/norgeshelsaen/> To see the actual example, select the following in the left hand side menu:

English version

- ▭ Key statistics
  - ▭ Population
    - ▭ Population structure
      - ▭ [Population size](#) (this should be an active link)

This site is powered by NESSTAR which is the company that developed the IHSN metadata tool kit.

Many NSO's simply use their own consistent method for documenting data. For example, see Statistics Canada's metadata site at: <http://www.statcan.ca/english/concepts/index.htm>. Having a database for metadata means that series and tables can be linked to the relevant documentation when they are posted on a web site.

**Recommendation:** It is recommended that MINAG commence applying metadata to its TIA survey files using the IHSN tool kit and the DDI standard. Metadata for aggregate data can be generated from the DDI metadata generated for the dataset or by looking at what other NSO's are doing and populate their time series data base with these metadata. Consultations with users may aid in the choice of metadata content.

## Microdata Dissemination

MINAG currently makes copies of the TIA datasets (in SPSS and STATA? formats) available to selected users via CD-ROM. This constitutes a very powerful research tool. As it also involves the responses given by respondents, it is a file that should be given out under the umbrella of a policy for the dissemination of microdata.

**Recommendations:** It is recommended that MINAG establish a policy for the distribution of survey level microdata sets. As a minimum, the policy should insist that users agree to certain terms and conditions. The following should be considered.

- The data and other materials provided by MINAG will not be redistributed or sold to other individuals, institutions, or organizations without the written agreement of the MINAG.
- The data will be used for statistical and scientific research purposes only. They will be used solely for reporting of aggregated information and developing statistical models and not for investigation of specific individuals or organizations. Users wishing to publish aggregate estimates that differ from those already published by MINAG should refer to MINAG for clarification.
- No attempt will be made to re-identify respondents, and no use will be made of the identity of any person or establishment discovered inadvertently. Any such discovery would immediately be reported to MINAG.
- Unless formally approved by MINAG, no attempt will be made to produce links among datasets provided by MINAG, or among data from the MINAG and other datasets that could identify individuals or organizations.
- Any books, articles, conference papers, theses, dissertations, reports, or other publications that employ data obtained from MINAG will cite the source of data in accordance with the Citation Requirement provided with each dataset.
- An electronic copy of all reports and publications based on the requested data will be sent to the MINAG.
- The original collector of the data, the MINAG, and the relevant funding agencies bear no responsibility for use of the data or for interpretations or inferences based upon such uses.

These principles are in line with the guidelines that are being used by the IHSN and the ADP. [If MINAG decides to pursue this initiative, examples and background information on this can be provided via the ADP.]

### ***Next Missions***

After discussion with senhores Diogo and Mate, it was decided that the next mission should focus on training and development. A number of new staff are expected to start working within MINAG during the second half of 2008 and will need orientation for their work in Agriculture Statistics. Existing staff, some of whom are relatively new in their posts will also need to have some of their knowledge deepened. The Kiregyera team recommended and outlined a course for Agriculture

Statistics training. This will be used as a guide in preparing this course. The course will be given by 2 consultants in November. This will be accomplished by combining missions 2 and 3 into one mission.

## ***Appendix A: Initial and Revised Terms of Reference for the Mission***

### **Introduction**

Mozambique has requested assistance from the GDDS initiative for three projects aimed at improving their agriculture statistics. More specifically they have requested missions to provide advice and support in the following areas:

1. Developing improved methods for data collection for livestock especially cattle and other ruminants
2. Data analysis training for technicians
3. Development of a new yearbook and web-based dissemination of census and survey results

This work will be divided into three technical missions.

The consultant will be asked to provide assistance to the National Statistical Institute (INE) and the Ministry of Agriculture using the following outline as a guide:

The consultant will discuss the following matters and report on that.

**Mission 1:** Developing improved methods for data collection for livestock especially cattle and other ruminants.

1. Identify the major objectives for the Mozambique livestock statistics program including the needs for major users such as the department of agriculture
2. Identify and confirm all the indicators for livestock statistics that the NSI needs to fulfill its mandate.
3. Identify and analyze all livestock questionnaires currently used by the NSI
4. For each survey, identify the target populations, sample sizes, and the orientation of the sector being surveyed. This analysis should take into account agricultural production by households for themselves, family and friends (subsistence activities) and commercial activities. [Please refer to annex 1]
5. Provide guidance and assistance on the sample design to be used to improve livestock statistics.
6. Review and revise (as necessary) all livestock questionnaires. This work should draw from the work of FAO and take note of other surveys in the region. If possible, these questionnaires should be tested with some livestock producers
7. Review estimation and analysis procedures
8. Review tabulations and dissemination material
9. Review the proposed work plan for missions 2 and 3 with a view to determining more specific needs.

**Mission 2:** Data analysis training for technicians

1. Determine the scope and objectives of the work to be done by the technicians
2. Determine, in advance if possible, the software environment in which they work and the nature of the files that they work with
3. Provide instruction and one on one training and guidance.

**Mission 3:** Development of a new yearbook and web-based dissemination of census and survey results

1. Review the major dissemination objectives and target audiences for the published material.
2. Validate objectives and obtain feedback from major users including the department of agriculture.
3. Guide the development of tables and time series to be included in the yearbook and the web
4. Advise on the use of data formats, helper software and metadata to be included in disseminated material

**Annex 1 Framework for analyzing agriculture surveys**

	Animals	Crops	Production Values	Stocks and inventories	Fisheries/ aquaculture	Horticulture	Organic	other
Survey design	x			x				
Questionnaire design	x			x				
Sample design	x			x				
Data collection	x			x				
Data processing	x			x				
Data analysis	x			x				
Data production	x			x				
Data Dissemination	x			x				

## **Following the first day of meetings with the staff from the Ministry of Agriculture, a proposal to review livestock statistics was developed**

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### ***A Proposal to Review Mozambique Livestock Statistics***

#### **Introduction**

Agriculture plays an important part in the Mozambique economy by contributing both to the GDP and employment for a significant part of the population. The livestock industry is becoming more important as a supply of food as Mozambique's population migrates to more urbanized centres.

The livestock industry mainly consists of cattle, goats, pigs, and chickens and other poultry. Information about the livestock industry is derived from a number of sources including the following:

- The Census of Population and Housing (PHC) conducted approximately every 10 years, collects information on the agricultural households including the number of households with livestock and number of cows, goats, sheep, pigs, chickens and ducks. This information provides the basis for conducting the Census of Agriculture and Livestock (CAP) as well as subsequent agriculture surveys
- The CAP is conducted on a sample basis using the PHC as a sampling frame. It provides more detailed information about agricultural holding and livestock numbers.
- An annual agriculture survey, Trabalho de Inquerito Agrícola (TIA) is in turn based on the CAP.
- The Directorate of Veterinary Services uses the TIA and also has information on livestock producers (arrolamento) which can provide head counts of cattle numbers every few years.

The Directorate of Veterinary Services is not only a source of information about cattle numbers but it is also one of the key users of this information in their vaccination programs on which the continuing health of the Mozambique cattle population depends.

#### **The Issue**

The Directorate of Veterinary Services requires reliable estimates of cattle numbers at varying levels of geographic detail. Comparisons between Directorate of

Veterinary Services data and the TIA indicate that the data do not align satisfactorily, particularly at lower levels of geography.

## **The Objective of the Study**

The objective of this mission is to review the manner in which cattle statistics are produced with the aim of identifying causes of divergence and to recommend ways of improving the consistency and reliability of the cattle statistics.

### **Specific tasks to be undertaken include:**

- To review the output from the TIA and to examine its methodology.
- To document the methods, sources and concepts used by the Directorate of Veterinary Services to produce their statistics.
- To identify the needs of the Directorate of Veterinary Services in terms of the precision and detail of the livestock statistics.
- To compare the different sources of cattle statistics with an aim of identifying the extent of divergence possible reasons for divergence and instability.
- To recommend options for improving the consistency and reliability of the cattle statistics for Mozambique.
- Time permitting, to examine the possibility of producing estimates of milk and egg production will also be examined.

## **The Report**

The report that will be produced as an outcome of this study will contain the following information:

- It will document the outcomes of the reviews undertaken and described above.
- It will present an analysis and conclusions that can be drawn from the assembled material.
- It will present options to be considered for steps that can be taken to improve the livestock statistics.

### **Process (to be elaborated)**

1. Review TIA-data and results-prepare summary for meeting with Veterinary Services
2. Meet with Veterinary Services
3. Meet with INE (week 2)

*This mission was abandoned after day 2 of the mission as there had been previous studies that needed to be acted on before any further actions were undertaken with respect to the original terms of reference.*

*The revised mission focused on dissemination activities. Following are the main topics that were examined.*

It was agreed that the consultant would prepare a seminar on the subject of dissemination planning.

**The proposed seminar topics:**

- The relationship between dissemination and the organization's mandates/objectives
- How to engage users and assess their needs
- The role of metadata and different approaches to producing and disseminating data and metadata
- A user driven approach to data formats
- Data delivery options
- Long term access and archiving data sets
- The role of paper publications in the dissemination process
- Strategies for 'smart publishing'
- Follow-up and evaluation

## ***Appendix B: Meetings and Daily Journal***

### **Monday March 10, 2008**

Initial meeting with Mr. A Mate, GDDS coordinator for MINAG and meeting with the TIA and livestock team. Meeting with Ellen Payongayong, Luis Lopes, Monasse Jorge, Felistberto Fumo. Was given an overview of TIA and the issues pertaining to livestock statistics. Prepared a detailed work plan for reviewing livestock statistics.

### **Tuesday March 11, 2008**

Presented livestock statistics plan to Mr. Mate. After a discussion, it was decided that it was not appropriate to continue with the original mission. Discussed the possibility and the parameters for changing the mission to focus on dissemination issues. Prepared an outline for a seminar on dissemination that would be given to MINAG and INE staff the following week.

### **Wednesday March 12, 2008**

Presented and revised outline for dissemination seminar.  
Prepared for dissemination training session

### **Thursday March 13, 2008**

Conducted research for seminar, prepared slides consulted with key users via telephone

### **Friday March 14, 2008**

Meetings with Policy and Planning staff. Met with Arlindo Miquel (Policy Analysis, SPSS user, preparing a monograph using the TIAs) and Acubar Batista (Planning, has knowledge of SPSS). Both feel that the TIA needs to be more actively disseminated. Issues faced by MINAG Economic Directorate are staff loss to other organizations and staff going off to other countries for further education. Other issues include the fact that the provincial offices have no capacity to manage software and computers. Software training received and then forgotten.

Meeting with staff of the Market Information Service (SIMA). (Anabela Mabote, Antonio Paulo, (plus 1 more person (possibly Angela Firia?) but I have lost the name sheet)). SIMA produces a weekly marketing bulletin which reports on prices, availability and quantities. This information is collected by enumerators every Monday for publication on Wednesday via radio and newspapers. They felt that TIA needed to be more visibly disseminated and organized as "official" statistics. The dissemination program should be part of the activity/task/schedule

### **Monday March 17, 2008**

All day meeting with Domingos Diogo (advisor in Economics Directorate) to review the draft dissemination planning document. More focus users, especially by ministers and MINAG. Discussed future missions.

### **Tuesday March 18, 2008**

Revised and finalized material for seminar. Reviewed draft with Mr. Diogo. Had meeting with the Director General of the Economics Directorate.

### **Wednesday March 19, 2008**

Meeting with INE. Met with Destina Uinge (from Communications and Dissemination), Camilo Amande and Axarias Nhanzimo from Economic Statistics. Discussion focused on TIA. They felt that the questionnaire was too long and should be reduced based on usage statistics. They also stressed the need to improve analysis and dissemination. Had a brief tour of INE's publishing centre and of the library/dissemination centre. Saw many good examples of publications and pamphlets (such as Mozambique in numbers).

Also had a brief meeting with Lars Carlsson from Statistics Sweden who is providing consultation services to INE.

Reviewed material for seminar with Mr. Diogo and Christopher Hill. Chris Hill is a former Statistics Canada employee who now lives in Mozambique and works as a statistical consultant. He was an advisor for the 2000 Census of Agriculture.

### **Thursday March 20, 2008**

Met with David Swayze who acted as the interpreter for the seminar. Presentation to approximately 25 staff members, mainly from MINAG. At the end of the seminar, participated in a question and answer session with the Director General (name), Mr. Diogo and Mr. Mate

### **Friday March 21, 2008**

Wrap up meeting and discussion of the next two missions. It was decided that a new proposal needed to be crafted for the next missions. In light of the fact that the knowledge of existing technical staff needs to be deepened and that a number of new staff will be hired by the fall, there was a need to develop a general training course for agriculture statisticians. The ministry staff only worked until noon as March 21 was Good Friday. The afternoon was spent developing an outline for a training course to be part of the next mission.

**Appendix C: List of Surveys and Data Collection Activities in Mozambique<sup>12</sup>**

**Agricultural Data Sources**

	<b>Source</b>	<b>Type of data</b>
1.	Population and Housing Census (RGPH)	1.1 Enumeration Areas (EAs) to be used as sampling frame for CAP and agricultural surveys 1.2 total population ( <i>by geographic and other breakdown</i> ) 1.3 number of agricultural households 1.4 number of agricultural households engaging in aquaculture ( <i>fish farming</i> ) 1.5 number of agricultural households with members involved in artisan fishing 1.6 number of agricultural households with cashew trees 1.7 number of agricultural households with coconut trees 1.8 number of households with livestock and number of livestock ( <i>cows, goats, sheep, pigs, chicken and ducks</i> )
2.	Census of Agriculture and Livestock (CAP)	<i>Benchmark data on the organization and structure of the agricultural sector. There are eight census items considered essential for national and international purposes:</i> 2.1 Holding by type ( <i>e.g. subsistence, commercial, etc</i> ) 2.2 Characteristics of holder ( <i>e.g. gender, education level, etc</i> ) 2.3 Population and employment 2.4 Land use 2.5 Agricultural practice ( <i>irrigation, use of fertilizers by type, animal traction, etc</i> ) 2.6 Crop area, yield and production ( <i>including tree crops</i> ) 2.7 Livestock production by type 2.8 Machinery, equipment and storage
3.	Agricultural Surveys <ul style="list-style-type: none"> <li>• Annual agricultural survey (<b>Light TIA</b>)</li> <li>• Agricultural survey</li> </ul>	<i>Current agricultural data for measuring performance of agricultural sector from year to year.</i> <ul style="list-style-type: none"> <li>• Crop forecasts (planted area, inputs, yield, production)</li> <li>• Livestock production</li> <li>• Post-harvest data (<i>harvested area, yield and production, sale of staple food crops, cash crops</i>)</li> <li>• Items in Light TIA plus:</li> <li>• Access to services, credit</li> </ul>

<sup>12</sup> Prof. Ben Kiregyera, et al, *op cit*, Appendix III

	<b>(Heavy TIA – every 3 years)</b>	<ul style="list-style-type: none"> <li>• Remittances and pensions</li> <li>• Vegetables and other crops</li> <li>• Fruit trees</li> <li>• Cashew and coconut trees</li> <li>• Livestock (<i>detailed</i>)</li> <li>• Livestock by-products</li> <li>• Well-being, food security and household vulnerability</li> </ul>
4.	Other Sources	<p><i>Supplementary information</i></p> <ul style="list-style-type: none"> <li>• Crop and agro-meteorological conditions (<i>Provincial Agricultural Offices, Meteorology Department, Satellite Images</i>)</li> <li>• Prices</li> </ul>

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***Appendix D: Presentation notes for Seminar entitled  
“Building a Dissemination Plan”***

**Note: This material is taken from the Power Point Presentation that was presented March 20, 2008. There are redundancies in the material. These are intentional to emphasize certain points. This material will eventually become part of a written guide intended to help organizations plan their dissemination activities.** Ernie Boyko, 2008,

**Objectives of the seminar:**

- To review the main activities involved in building a dissemination plan for agriculture statistics in Mozambique
- To review the progress of the main agriculture survey (the TIA) and recommend actions that will support short and long term access to the TIA data
- To interact with the participants at the dissemination seminar to solicit ideas on strengthening TIA and other dissemination

**Mandate and Mission:**

In developing a plan for statistics, one must ask:

- Why does the Statistics Department exist?
- What is its mandate?
- Who are the major stakeholders for agriculture statistics?
- How does this fit with the strategy for the agriculture sector?
- What are the international reporting obligations for Mozambique and feedback needs of sponsors?

**Main Stakeholders:**

There will be many stakeholders

- Ministry of agriculture (policy, production support).
- Minister and cabinet of ministers (the minister needs to convince his cabinet colleagues about agriculture priorities).
- Economics Directorate (as the authors of policies and plans)
- Planning/MIS (for planning, monitoring and reporting on the agriculture sector)
- Livestock division (to develop and evaluate livestock policies)
- Crops division (to develop and evaluate crops policies, food security)

- Veterinary services (to have sufficient information to maintain the health of livestock populations)
- Agriculture services (to plan and target services)
- Extension services (to plan and target services)
- IIAM (to plan and evaluate research programs)
- Provincial directorates of Agriculture
- Provincial and district offices
- Cashew and Cotton Institutes
- Instituto Nacional de Estadística
- Ministry of planning and development
- Ministry of Commerce
- Universities
- International organizations
- NGOs
- Schools – as a learning resource? Could be added in the future.
- Other

This list was compiled based on conversations with various staff members with MINAG. It should be reviewed periodically and updated as necessary.

### **What is dissemination?**

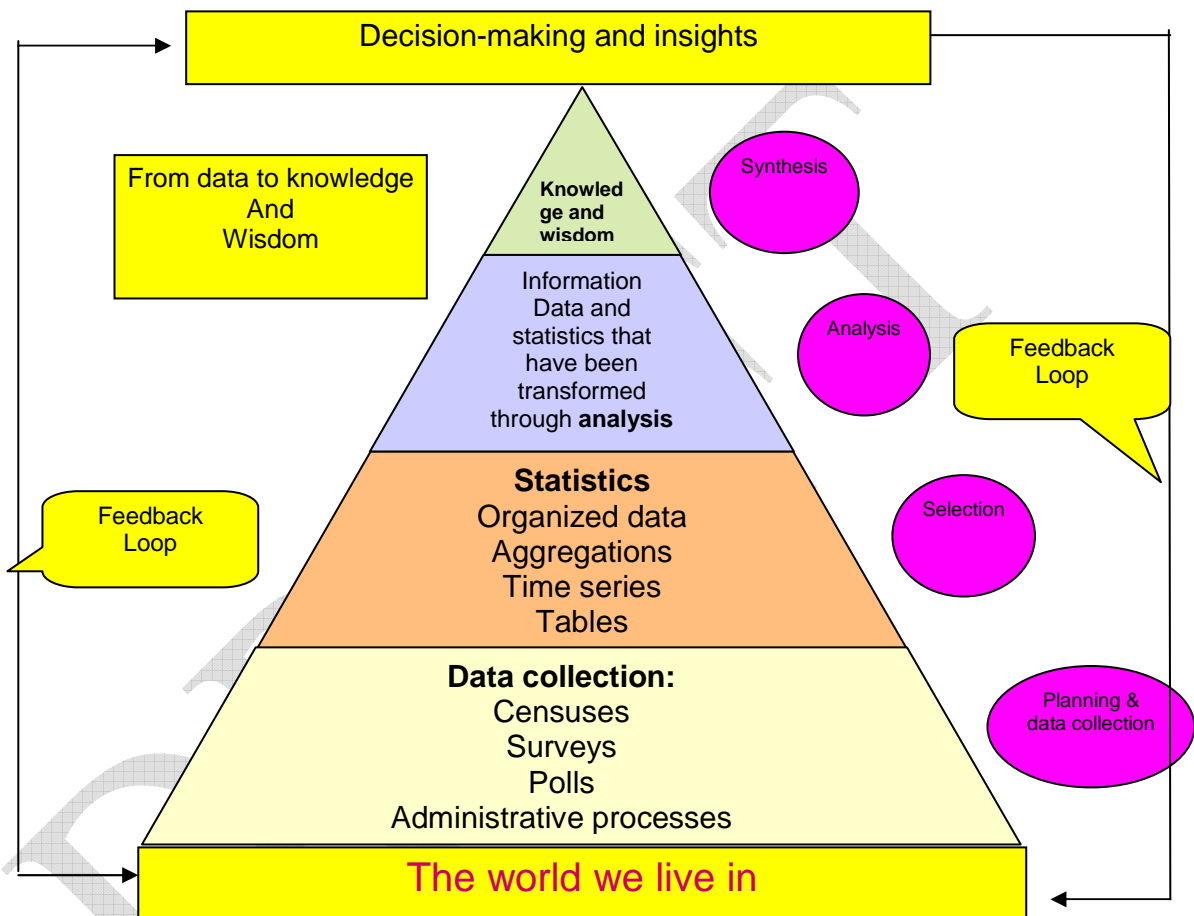
The process of creating and distributing relevant data and information products to target audiences where:

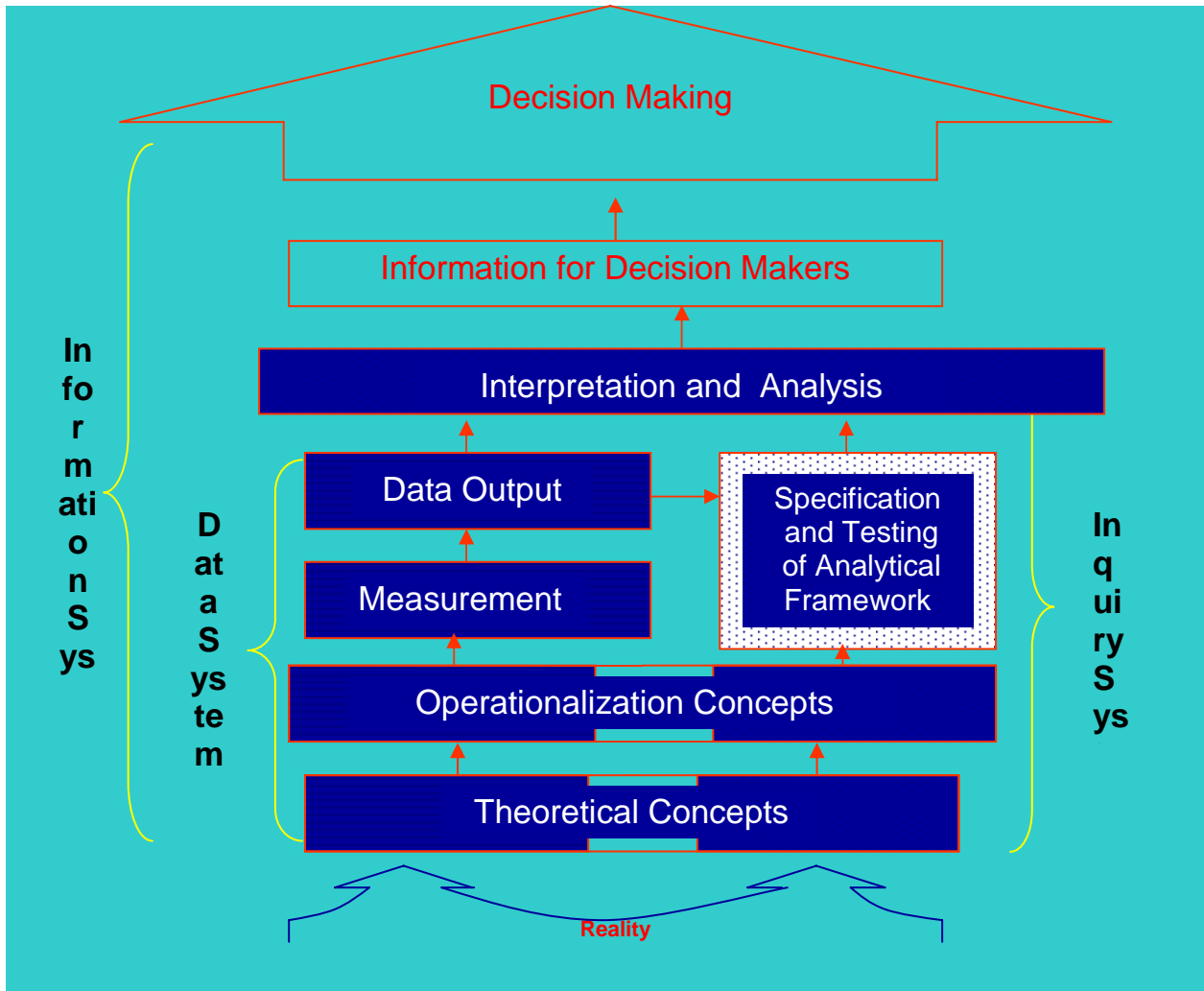
- Data products are of a defined quality, delivered in a timely fashion in a format suitable for the intended use
- Access to data and information is available now and in the future

### **Why Dissemination?**

- Dissemination is the ultimate objective of any statistical system
- Dissemination is a way to meet the objectives of the organization
- Puts producers in touch with users
- Allows producers to get feedback for next survey cycle
- Builds support for the statistics program

This graphic portrays the process by which information on the world we live in (whether it is agriculture or any other domain) is gathered, organized to create statistics, and analyzed to produce information to support decision making and to provide insights. It also shows the feedback loop between outcomes in the real world and what is measured.





This graphic shows the relationship between the processes that are used in the statistics system and those used by policy analysts who use modeling and other quantitative techniques to portray the world to support decision-making. Both processes are usually grounded in the same theoretical and operational concepts. Analysts (who give advice to policy makers) will use both sources of information to perform their functions.<sup>13</sup>

**Consulting with users:**

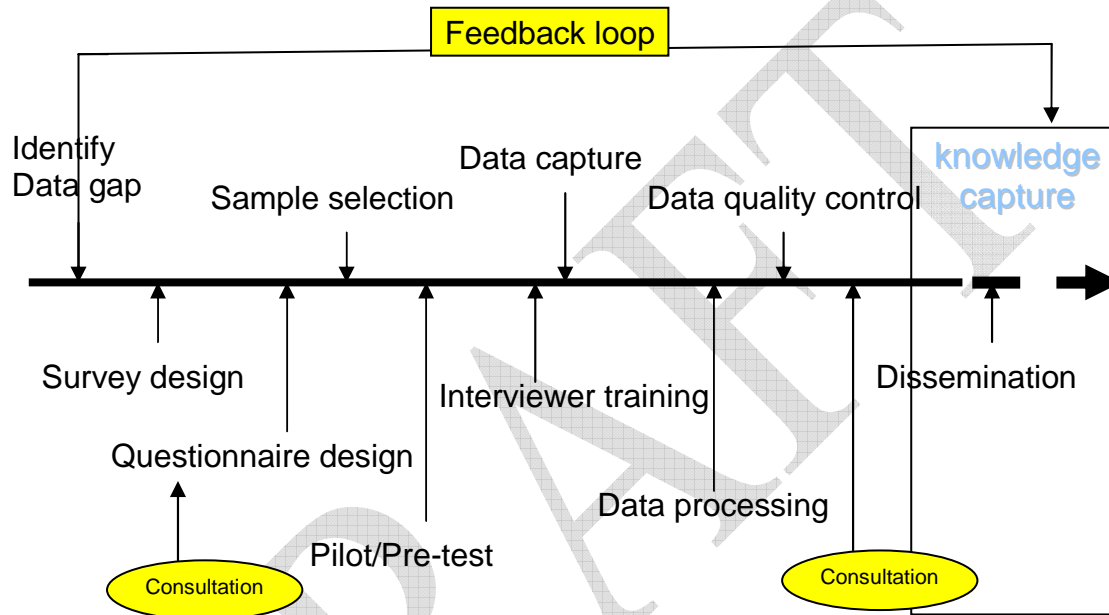
Users are the key to building a dissemination plan

- Need to know who they are (See stakeholder slide)
  - What they need
- Need to talk to them
  - About the content of the survey

<sup>13</sup> This schematic and analysis is based on the work of Dr. James Bonnen of Michigan State University.

- About the nature of the products
- Needs versus wants
- Priorities
- Trade-offs

## Generic Survey Process



Consultation can take place at two different stages:

- During questionnaire development to ensure that the right questions are asked, and
- Prior to the dissemination process to ensure that the right products are produced in the right formats.

### Official Statistics:

What are “official statistics”?

- Official statistics are collected by government to inform debate, decision-making and research both within government and by the wider community
- They provide an objective perspective of the changes taking place in national life and allow comparisons between periods of time and geographical areas.
- Reliable social and economic statistics are fundamental to open government (and) it is the responsibility of government to provide them and to maintain public confidence in them.

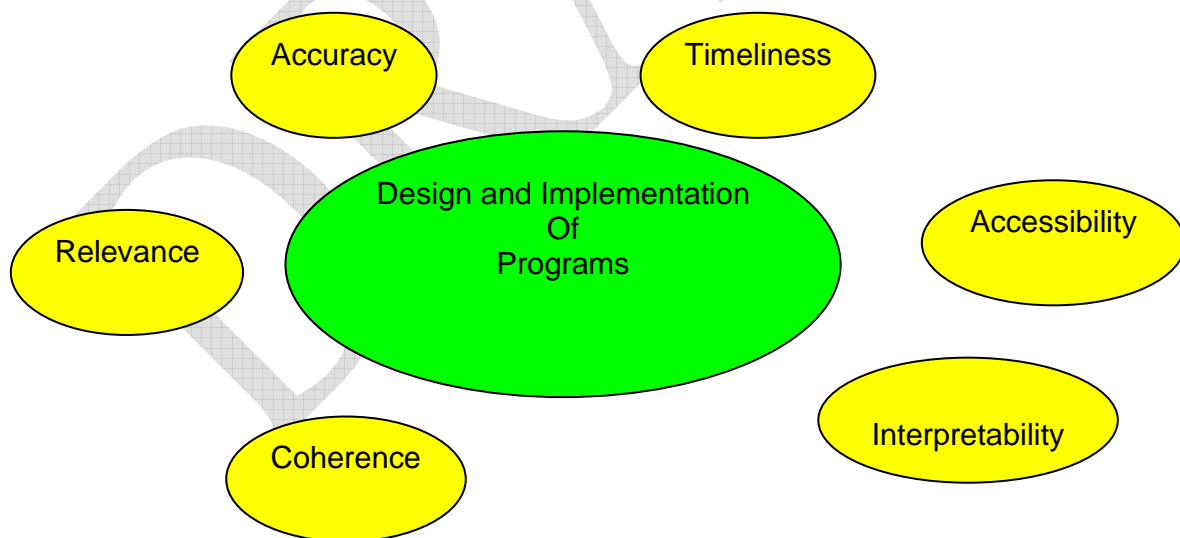
- Open access to official statistics provides the citizen with more than a picture of society. It offers a window on the work and performance of government itself, showing the scale of government activity in every area of public policy and allowing the impact of public policies and actions to be assessed.<sup>14</sup>

### Good Practices for Statistics:

- The statistics produced should be based on user needs and legal/policy requirements
- They should be produced based on sound statistical practices
- The statistical process should respect respondents (burden & confidentiality)
- Adequate metadata should accompany the statistics to support the understanding and use of data
- A range of products should be available to all users (not all users have the same abilities)
- Preservation of data and files for the future is essential.

These practices are basic to a statistical system: consultation not required for these matters.

## Quality Assurance Framework



Source: Statistics Canada 12-586-XIE <http://www.statcan.ca/bsolc/english/bsolc?catno=12-586-X>

<sup>14</sup> United Kingdom White Paper on Open Government, July 1993

Many statistical agencies define the quality of information in terms of its fitness for use. “This is a multidimensional concept embracing both the relevance of information to users’ needs, and characteristics of the information such as accuracy, timeliness, accessibility, interpretability and coherence that affect how it can be used.” For more information, see Statistics Canada

<http://www.statcan.ca/english/freepub/12-586-XIE/12-586-XIE2002001.pdf>

### **Metadata and Data Outputs**

Metadata are an important means of communication between the producers and the users of statistics.

- Metadata refer to information or ‘data about data’
- Help users decide whether the data are appropriate for their needs

Data and information outputs: One survey, like the TIA, can be used to produce many different outputs including the following examples:

- Survey highlights
- Highlight tables
- Profile tables
- Additions to time series
- Cross tabulations
- Public use microdata files
- Master file access (custom tabulations)
- Monographs

### **Metadata**

Examples of metadata

- Methods, sources and concepts documentation
- Questionnaires
- Data quality statements
- Footnotes and explanations
- Codebooks
- Catalogues
- STATA, SPSS setup files

### **User Consultation**

There is no best way to do this. The important thing is to setup a mechanism and follow through.

Consultation mechanisms:

- Systematic needs analysis
- Regional meetings with consultation guide
- User meetings and seminars
  - Within ministry
  - With other ministries

- Interdepartmental committee
  - Provincial meetings
  - Universities
  - Associations and NGOs
- Feedback from previous results

### **Products and Services:**

To start the planning process, select some target groups (of users)

- Major users and stakeholders (see list from above)
- Look at the users' capacity to use information: are they novice or experts? Can they use an SPSS data set or do they wish to have a table with analysis? This would suggest the need for a range of products.

Start with an initial bundle of existing data and consult with users and find out

- What are they using now? How are they using it?
- What would they **like** to have? What do they **need** to have?
- Unmet needs?

### **Developing an Initial Bundle of Products and Services**

Start with what you have

- Tables
- Code books
- Data files
- Documentation

Review what was done in the past (yearbooks from the 1980's?)

Look at other countries (yearbooks, web sites)

FAO and other recommendations

### **Developing Products and Services:**

- Create a project
- Put someone in charge
- Task people to develop basic statistics for each of the major agriculture sectors (look at all the TIAs and the Censuses and create a profiles)
  - Crops
  - Livestock
  - Inputs/farm practices
  - Other...as necessary
- Use the basic statistics to develop a basic bundle of data products
- Start with tables for paper publications and then develop web content
- Develop a prototype annual year book
- Brain storm with staff and important users
- Look at other countries
- Look at the INE publications
- Adapt based on the Mozambique agriculture situation

- TIA content
- Important activities/Mozambique priorities
- Meet with groups of users to review
- Revise and review again

### **One TIA--many products**

Increasing the return on the investment in the survey

- Products
  - Survey highlights: release notes and descriptive analysis
  - Highlight tables-for publication and web
  - Geographic summary tables
  - Cross tabulations
  - Public use microdata files: (like the TIA SPSS files)
  - Master file access (custom tabulations)
  - Calendar of release dates – staggered releases

### **Data and Metadata Delivery**

- Paper based products are far from obsolete! They are important for users who do not have very good internet connectivity or do not have the skills to use the Internet
- CD-ROMs and DVDs (where Internet is slow or not available)
- File Transfer Protocol (FTP)
- Web (HTTP- Hyper Text Transfer Protocol)
  - HTML pages
  - Catalogues
  - Databases
  - Portals

For an example of the different ways in which data are made available to users, please see an article by Chuck Humphrey from the University of Alberta published by Statistics Canada. See

<http://www.statcan.ca/english/Dli/continuumofaccess.htm>

### **Paper as a delivery mechanism:**

- Paper provides high level information with attractive layout e.g. agriculture at a glance OR Mozambique in Numbers. Of course, creating the layout requires effort and skill.
- Suited for high level compendia such as the INE year book. A yearbook is a good way to start a dissemination program.
- A document created as a PDF file can be electronic and printed onto paper as well
- Paper products require very little 'technology' for users
- They are portable and,
- They are 'self archiving'. For example, the Canada Year book goes back over 140 years

### **Electronic delivery:**

- The TIA research files are delivered on CD-ROM. This could also be done from a web site or from an FTP (File Transfer Protocol) site.
- Web pages (future development)
- Web sites can be used to deliver the year books and other publications
- The right tool can help put data and statistics on the web

### **Research Data Files:**

The following are recommendations:

- MINAG should continue to produce the SPSS and STATA microdata files
- These files should be archived
- An archival copy of the dataset can be produced by creating a <ddi> version of the survey metadata and saving the data as an ASCII file.
- The use of tools from the International Household Survey Network (IHSN) should be investigated
- See <http://www.surveynetwork.org/home/>
- The IHSN has developed a web-based tool for microdata, documentation, tables questionnaires etc. (It is called NADA...National Data Archive). See the Central Statistics Authority for Ethiopia as an example: <http://www.csa.gov.et/nada/>
- There are a number of countries that are using these tools. (A list is being developed).

### **Archiving Data Files:**

- Data archiving is the process of rendering data and metadata into a format that allows them to be preserved for future access
- Archiving is the basis for long term access
- It aims to avoid data loss due to system and software changes
- <ddi> is an archival format
  - Metadata put into XML
  - Data are kept in ASCII
- Discussion of archiving leads to a consideration of formats
- For research data, users want SPSS, Stata and SAS
- For tables, they want to be able to import data into EXCEL or ACCESS
- These formats are proprietary and change over time
- This can lead to data loss, thus the need to archive data
- As an archival format, <ddi> permits data producers to convert metadata into XML
- The IHSN tool kit can be used to create DDI compliant documents and generate files for the web or CD-ROM
- The IHSN web-based archive tool (also known as NADA) is a server suite that allows statistical agencies to put their data files and metadata on the web

- NADA and the tool kit are free (open source) and is multi-lingual
- A training session on the IHSN tool kit has just been carried out in Mozambique and a staff member from MINAG was in attendance
- The tool kit is a joint effort to keep countries from having to 're-invent the wheel' ...flows from the Marrakech Action Plan (MAP)
- Over 60 countries are using the IHSN tool kit
- Examples in Africa:
  - Cameroon
  - Ethiopia
  - Gambia
  - Liberia
  - Mali
  - Nigeria
  - Senegal
  - Mozambique in the future?

**TIA: Things to consider:**

- Create an agriculture yearbook for paper and the web
  - Provincial officials
  - Minister and other officials
  - Libraries
  - Schools
- Show variables by geography and time
- Create one version and use for both the web and paper
- Create regular and consistent tabulations by subject for publication of the web and paper
  - For crops, livestock, other
  - Regular data can become 'official' statistics
  - Review survey data in the context of other data sources such as administrative sources
    - For an excellent discussion of this see: Programs and Plans - Livestock Section (Available from Mr. Mate)
- Investigate the possibility of a time series database
- Review the stratification and keep the livestock sampling frame up to date
- Carry-out a user needs assessment with the aim of validating the list of potential tables and extent to which users are able/willing to use electronic information
- Identify what type of electronic information they would like to have and what formats they want to use

**Unmet Needs:**

- Are there user needs that are not being met?
- Which ones can be met from TIA?

- Which ones require new surveys/efforts?

### **Partnerships, Outreach**

- Media, universities, research institutes can help to promote the statistics and can give support and feedback.
- Do you give users a mechanism for contacting you?
- Users can give valuable feedback after they receive/use your products

### **Evaluation:**

- After a few years, conduct a user satisfaction survey (it doesn't have to be fancy!)

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