Using Modern Technology to Make Metadata of Agricultural Statistics Available for Data Users

Waleed Mohammed
Statistician at Demographic statistics
Central Agency for public Mobilization and statistics (CAPMAS)
Nasr city, Cairo, Egypt
E-mail: kant2012xp@hotmail.com

DOI: 10.1481/icasVII.2016.h46b

ABSTRACT

Egypt's agriculture sector remains one of the most productive in the world, despite the small percentage of arable land, irregular and insufficient water supplies and problems with waterlogged and highly sainted soil. Although farmers do not have to pay for water used in irrigation, government drainage efforts have proved insufficient to counter problems in the sector's performance.

so Reliable and timely information about agriculture statistics such as crop area, crop production and land use is great importance to planners and policy makers for efficient agricultural development and for taking decisions on procurement, storage, public distribution, export, import and many other related issues.

Based on the above prospective this paper will discuss types of users for agricultural statistics , the experiences of CAPMAS (National statistics office in Egypt) in documentation Metadata of annual Bulletin of crop areas and plant production (ABCAPP) using Micro data Management Toolkit and disseminate it using National Data Archive (NADA) and the benefits which returns on users.

Keywords: Micro data Management Toolkit; National Data Archive (NADA); Dissemination; Crop areas; Plant production.

1- Importance of agriculture in Egypt

We can summarize importance of agriculture in Egypt in the following points:

1.1 Agriculture is considered a source of livelihood for a large proportion of people and food security.

1.2 In Egypt as most developing countries Agriculture is still a large proportion of GDP.

1.3 There are large numbers of households in Egypt involved in agricultural activities.

1.4 Most farms are small and performance depends on decisions taken by millions of farmers unlike industrial sector.

1.5 Agricultural production is unpredictable because of its heavy reliance on weather, particularly rain.

1.6 Food shortages may lead to political unrest.

1.7 Agriculture in Egypt is different from other sectors for these reasons:

1.7.1 Nature of agricultural production is different due to (Seasonality, Geographic spread, Risks and uncertainty: climate change, market forces, Source of technical change (depend on research by Government agencies).

1.7.2 Farm households both as producers and consumers.

1.7.3 There are intrinsic linkages with other rural economic activities such as agro-forestry, fisheries at the household level which are difficult to segregate. Studying or collect data on them together makes sense.

2- TYPES of USERS for AGRICULTURAL STATISTICS

The Official statistics are intended for a wide range of users including governments (central and local), research institutions, professional statisticians, journalists and the media, businesses, educational institutions and the general public. There are three types of users for agricultural statistics: those with a general interest, business interest or research interest (universities, consultants and government agencies). Each of these user groups has different needs for agricultural statistical information.

2.1 Users with a general interest

Users with a general interest include the media, schools and the general public. They use agricultural statistics in order to be informed on a particular topic such as "Crop statistics, Livestock numbers, Holder's legal status and ownership form ...etc ", to observe trends within the society of a local area, country, and region of the world.

2.2 Users with a business interest

Users with a business interest include decision makers and users with a particular interest for which they want more detailed information. For them, agricultural statistics are an important reference, providing information on the phenomena or circumstances their own work is focusing on. For instance, those users will take some agricultural statistics into consideration before launching a product which depended on agriculture, or deciding on a specific policy or on a marketing strategy. As with the general interest users, this group does not usually have a good understanding of statistical methodologies, but they need more detailed information than the general users." Annual and permanent crops: Sown areas, harvested areas, production, yield'.

2.3 Users with a research interest

Users with a research interest are universities, consultants and government agencies. They generally understand something about statistical methodology and want to dig deeper into the facts and the statistical observations; they have an analytical purpose in inventing or explaining interrelations of causes and effects of

different phenomena. In this field, official statistics are also used to assess a government's policies such as:

2.3.1 The eradication of hunger, food insecurity and malnutrition;

2.3.2 The sustainable management and utilization of natural resources (land, water, air, climate and genetic resources) Reduce Rural Poverty.

2.3.3 Enable inclusive and efficient agricultural and food systems.

2.3.4 Increase resilience of livelihoods to threats and crises.

3- Documentation Metadata of annual Bulletin of crop areas and plant production(ABCAPP) using Micro data Management Toolkit and disseminate it by using National Data Archive (NADA).

3.1 Definition Meta data

A very simple definition of metadata is that it is any information that helps users find, understand and use data and information. It is also referred to as documentation. Metadata helps us judge the quality of a survey and whether it meets their needs. It is also important for long term preservation.

The metadata should explain what was measured and how it was measured.

3.2 steps of using Toolkit in Documentation Metadata for annual Bulletin of crop areas and plant production (ABCAPP) 2012/2013

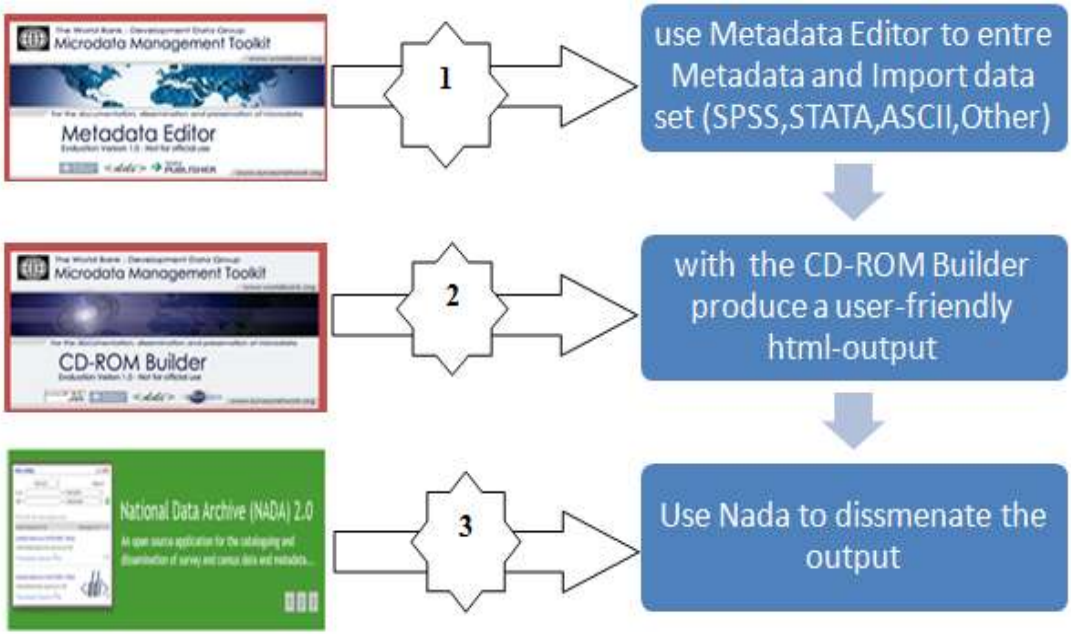
3.2.1 Use Metadata Editor to Document survey data in accordance with international standards (DDI-DCMI).

3.2.2 Use CD-Rom Builder to Generates user-friendly outputs, such as CDs, websites, for dissemination and archiving.

3.2.3 Use National Data Archive (NADA) For viewing metadata in website.

The following Figure summarized steps of using Toolkit :

Figure 1 : Steps of Using Toolkit in Documentation Metadata *for (ABCAPP)*



3.3 Using NADA in Dissemination metadata for The annual Bulletin of crop areas and plant production 2012\2013

NADA is an open source microdata cataloging system, complaint with the Data Documentation Initiative (DDI) and Dublin Core's metadata Initiative (DCMI). It serves as a portal for researchers to browse, search, compare, apply for access, and download relevant census or survey datasets, questionnaires, reports and other information.

The NADA is designed to facilitate the process of releasing micro data to the user community, and support the analysis of this data by the provision of standardized information about the data (metadata). Proper micro data management utilizing the NADA software can have the following advantages for data producers:

3.3.1 Increased quality and diversity of research.
3.3.2 Improved reliability and relevance of data.
3.3.3 Reduced duplication of data collection activities.
3.3.4 Improved visibility of survey institutions as their data becomes more frequently.
3.3.5 Increased donor and public confidence in the survey data producers.
3.3.6 Improved publishing and dissemination efficiency of for data producers.
3.3.7 More efficient access to survey information such as reports, tables, and micro data.

The national statistical office in Egypt used NADA for Dissemination metadata for Agriculture surveys. The following figure shows that Metadata for the annual Bulletin of crop areas and plant production 2012\2013 in the website of CAPMAS.

Figure 2 : Data Catalog for the Bulletin of crop areas and plant production

For more details visit website of CAPMAS:
http://www.capmas.gov.eg/Pages/ShowPDF.aspx?page_id=http://www.censusinfo.capmas.gov.eg/Metadata-ar-v4.2/index.php/catalog/

3.4 Metadata for *the annual Bulletin of crop areas and plant production* (ABCAPP)

The following point some examples about metadata for (ABCAPP) from website of CAPMAS:

3.4.1 Objective

Provides users with indicators about (Holding location, Holder's legal status and ownership form, Data on the holder and composition of his/her household, Land tenure and land use (including areas under major temporary crops),Livestock numbers, Main purpose of production, Ownership and use of agricultural machinery, Land structure, Crop statistics ,Annual and permanent crops: Sown areas, harvested areas, production, yield.

3.4.2 Period of Data Collection :

Agricultural year beginning from the first of November and ends in October next year.

3.4.3 Data Sources

3.4.3.1 Ministry of agriculture
3.4.3.2 Central Administration of Agricultural Economics.
3.4.3.3 Research Institute for Lands, Soil , Water
3.4.3.4 Agriculture Departments in the Governorates.
3.4.3.5 website of Euro stat http://epp.eurostat.ec.europ.eu
EU POPA-Eurostat-Agriculture and Fishery

3.4.4 Methods of data collection

3.4.4.1 Interview
3.4.4.2 E-mail.

3.4.5 Indicators about crop areas and plant production

3.4.5.1 The total cropped area reached 15.48 million feddan in 2012/2013 versus 15.57 million feddan in the previous year, an decrease of 5.0 %.
3.4.5.2 The total cultivated area reached 8.94 million feddan in 2012/2013 versus 8.80 million feddan in the previous year an increase of 1.6 %.
3.4.5.3 The total area of wheat reached 3.38 million feddan in 2012/2013 versus 3.16 million feddan in the previous year an increase 6.9%and amount of wheat crop production reached 9.46 million tons in 2012/2013, versus 8.80 million tons in the previous year, an increase of 7.6%.
3.4.5.4 The total area of rice reached 1.42 million feddan in 2012/2013 versus1.48 million feddan in the previous year an decrease 3.7%. and amount of rice crop production reached 5.72 million tons in 2012/2013 versus 5.91 million tons in the previous year, an decrease of 3.2 %.

4- CONCULSION

Using modern Technology to Make Metadata of Agricultural Statistics Available for Users by NSO is very important, because metadata helps them to:

4.1 Find the data they are interested in. Without names, abstracts, keywords, and other important metadata element it might be difficult for a researcher to locate specific datasets and variables. Any cataloguing and resource location system—whether manual or digital—is based on metadata.

4.2 Understand what the data are measuring and how the data have been created. Without proper descriptions of the survey design and the methods used when collecting and processing the data, the risk is high that the user will misunderstand and even misuse them.

4.3 Assess the quality of the data. To know whether data are useful for a research project, researchers need information about the data collection standards, as well as any deviations from the planned standards.

REFERENCES

1- English, B. C., Alt, K. F., & Heady, E. O. (1982). Documentation of the Resources Conservation Act's assessment model of regional agricultural production, land and water use, and soil loss.

2- Ryssevik, J. (2001). The Data Documentation Initiative (DDI) metadata specification. *Ann Arbor, MI: Data Documentation Alliance. Retrieved from http://www. ddialliance. org/sites/default/files/ryssevik*.

3- https://en.wikipedia.org/wiki/Ancient_Egyptian_agriculture

4- http://www.ihsn.org/home/

5- http://documentation.ihsn.org/nada/4.2/

6. http://www.capmas.gov.eg/Pages/ShowPDF.aspx?page_id=http://www.censusinfo.capmas.gov.eg/Metadata-ar-v4.2/index.php/catalog/