Use of Non-Official Sources for International Food Security and Agricultural Statistics

Pietro Gennari, Stephen Katz, Carlo Cafiero

Food and Agriculture Organization of the United Nations

FAO relies on official sources for its statistical work to the greatest possible extent. However, in certain circumstances that are consistent with the “recommended practices in the use of non-official sources in international statistics” as endorsed at the 22nd Session of the CCSA, it is occasionally necessary for FAO to also use non-official sources. This paper presents several examples of how non-official sources are used by FAO in its statistical work and why this approach is necessary and ensures at the same time compliance with the highest quality standards. The paper then focuses specifically on FAO’s “[Voices of the Hungry](http://www.fao.org/economic/ess/ess-fs/voices/en/)” project, an initiative through which FAO will collect data on the extent and severity of food insecurity, through a carefully-designed annual survey to be conducted in collaboration with polling specialists Gallup, Inc. The Voices of the Hungry Project will have a particularly powerful role in enhancing the capacity of FAO to monitor a possible goal on food security and nutrition in the post-2015 development agenda. The survey in fact will cover more than 150 countries worldwide and will allow FAO to publish comparable results on each country every year with a very short time lag, conditions that cannot be met relying on official national sources alone.

1. **Introduction and Background**

The discussion on the discrepancies between national and international data has taken centre stage in the major statistical forums in the last decade. The main reasons that triggered these discussions were the publication of the Human Development Report by the United Nations Development Programme (UNDP) and the annual dissemination of the estimates of the Millennium Development Goals (MDG) indicators in the UNSD official database.

At its 37th session, the UN Statistical Commission approved a resolution which requested that all international agencies avoid “imputation unless specific country data are available for reliable imputations, following consultations with concerned countries and through transparent methodologies”[[1]](#footnote-1). Subsequently, the 42nd session of the Commission “urged the UN Statistics Division to take a central role in assisting Member States in addressing issues of data discrepancies and consistency with international organisations, paying special attention to issues of consistency of data disseminated by United Nations agencies”[[2]](#footnote-2) and decided to establish a Friends of the Chair group on enhanced coordination of statistical activities within the United Nations system.

On the other hand, on several occasions the CCSA has discussed imputation practices and the use of non‐official data sources in the production of statistical series by International Organisations (IOs). This work has culminated in the adoption of the “Recommended Practices on the Use of Non-Official Sources in International Statistics”[[3]](#footnote-3) at the 22nd session of the CCSA.

Building on the recent work of some CCSA members[[4]](#footnote-4), this paper highlights the specific role played and the niche filled by IOs regarding official and non-official statistics and provides examples of how FAO fulfils its own role in this regard. It then illustrates how non-official sources are used to collect data and indicators on food insecurity through the Voices of the Hunger Project[[5]](#footnote-5), why this is necessary, the specific quality assurance mechanism foreseen and the issues and difficulties that are likely to be faced. The paper ends with some overall reflections and conclusions.

1. **Role of International Organisations in producing official statistics**

Even if there is not a universally accepted definition of official statistics at international level, few would contest that data produced, collated, and disseminated by national governments and their agencies, the so called National Statistical System (NSS), are to be considered as “official”. This is the case despite the fact that only a limited number of countries clearly define the scope of official statistics and the responsibilities of the national data producers by law.

The role of IOs in producing official statistics is more controversial. The opinion that IOs should limit themselves to just compiling already‐existing governmental statistics is still widespread. According to the SDMX Guidelines, on the other hand, official statistics also include all statistical activities carried out “under the statistical programme of an intergovernmental organization”[[6]](#footnote-6). This definition is based on the assumption that member states have the opportunity to review and endorse the statistical programme of intergovernmental organizations. In reality, this is not always the case as a number of membership-based IOs do not have a proper statistical governance system.

The role and mandate of IOs with respect to official/non-official statistics has evolved over time. Initially they acted more as a “user” of statistics, collecting processing and analysing data for internal purposes and as a provider of analyses, by subsequently publishing elaborated data within analytical reports. However, the role rapidly progressed to one also of “producer” of data and statistics, on one hand to address the need for harmonization and standardization at international level, and on the other hand to address knowledge gaps present in the national statistical systems.

In the current globalized world, more and more international and national decision making is based also on international sources of statistics. Users rely on international sources to put the national data into perspective and to complement them with additional indicators. In short, IOs add value to official national statistics through the transformation of national data to international “Global Public Goods”, provided to users in a standardized and comparable format across countries.

1. **Reasons for use of Non-Official Sources**

IOs normally rely on official sources for their statistical work. This originates from the mandate of the IOs and from the fact that, in general, data disseminated by the NSS are produced according to the highest professional standards. The Fundamental Principles of Official Statistics, adopted by the UN Statistical Commission in its Special Session of 11-15 April 1994, guide the work of the NSS in many countries and several statistical fields.

However, IOs may need to also use non-official sources in order to fulfil their mandate to provide relevant global public goods while, at the same time, meeting user needs and maintaining the trust and credibility in the statistics they disseminate. In particular, IOs cannot only rely on official sources to play their “value added” role at the international level when national official statistics are not available or do not meet international quality standards. Limited financial and institutional resources, especially in developing countries, may prevent the implementation of proper data collection tools by national statistical institutions. In some countries, national definitions may differ from international definitions and data produced may therefore not be internationally comparable. In countries where the statistical process is not transparent, government statistics on areas that are highly politically sensitive may not always meet the highest quality standards. Finally, many NSS find it difficult to meet the rapidly increasing demand on the global statistical system for real-time statistics or for data in new areas.

In these instances, non-official sources may offer the only means to bridge the information-gaps left by official statistics. Traditionally, non-official sources are used by IOs to validate official data; to increase their accuracy and comprehensiveness; to improve data comparability and to fill missing values. Less common are the cases in which IOs undertake independent data collections to produce indicators specific to their mission and which are not covered by official national statistics.

In all these cases, the adoption of non-official data should be made by IOs only when all the possibilities of using national sources have been exhausted. In addition, strict and transparent protocols should be applied in order to ensure that non-official statistics used by IOs are of good quality. When using non-official sources the ultimate objective of IOs is to guarantee a greater level and scope of service compared to what is possible to achieve through the use of official sources alone, while at the same time ensuring the highest possible level of quality. This emphasis on the need to apply quality assurance procedures is imperative to reassure stakeholders on the accuracy, reliability and robustness of the approaches adopted.

1. **Use of Non-Official Sources at FAO**

As mandated by its Member Countries, one of the core functions of the Food and Agriculture Organization of the United Nations (FAO) is to “assemble, analyze, monitor and improve access to data and information, in areas related to FAO´s mandate.”[[7]](#footnote-7) In view of its intergovernmental status and serving as a neutral platform for Member Nations to access data and knowledge, FAO has both a clear mandate and an inherent competitive advantage to fulfil this vital role in the production of rural, agricultural, natural resource, food security and nutrition statistics.

FAO relies on national official sources for its statistical work to the greatest possible extent. However, in certain circumstances it is occasionally necessary for FAO to also use non-official data. The approaches utilized by FAO cover the whole spectrum of the modalities of use of non-official sources by IOs. The examples provided below illustrate how FAO fulfils this responsibility in full compliance with CCSA recommendations on the use of non-official sources. In particular, a corporate quality assurance framework for FAO statistics[[8]](#footnote-8) [[9]](#footnote-9), together with a corresponding implementation strategy and plan, has recently been developed and endorsed by the Organization. This framework provides a tangible and transparent mechanism to demonstrate FAO’s commitment to data quality and offers a means to further boost the organization’s credibility and reputation in the eyes of Members, partners and the public at large.

* 1. *Fertilizer Production, Trade and Consumption*

Reliable data on fertilizers are important for many purposes, including medium-term forecasting and national policy planning of agricultural production, as well as analysis and policy interventions related to the environment. The FAOSTAT[[10]](#footnote-10) fertilizer domain employs a supply and utilisation account structure with production, trade, consumption and non-fertilizer use as its elements. The main source is official statistics received from countries. FAO however uses also supplementary data from the International Fertilizer Association (IFA) to estimate all the elements of the accounts. These non-official data are needed to validate official sources; to impute missing country level data; and to compile more complete and comparable regional and global aggregates. A specific problem addressed is the confidentiality of fertilizer production data due to the dominant role, in the fertilizer market of some countries, of a very small number of companies. In these instances, disclosure of fertilizer production data may specifically identify the business activities of a particular company, thereby potentially undermining any competitive advantage. Companies therefore are reluctant to make their data available to the National Statistical System and where they actually do this, it is only with severe restrictions on their use.

In view of the critical role of these non-official sources in constructing representative estimates for the supply and utilization accounts, FAO fertilizer data specialists have entered into a close dialogue with representatives of the fertilizer industry, which has proven to be of vital importance to guarantee a greater level of data reliability before dissemination takes place through FAOSTAT. Thanks to this cooperation[[11]](#footnote-11), compiling data from official and non-official sources leads to a higher quality FAOSTAT fertilizer data domain that meets the needs of users.

* 1. *Early Warning and Emergency Preparedness Needs*

The rationale to use non-official sources also includes the need to produce timely and even real-time information for early warning systems, emergency preparedness as well as food aid and agricultural rehabilitation programmes. In this case, FAO resort to non-official data sources in order to collect and compile real-time data. Using official channels and methodology-heavy approaches would simply be too time-intensive to produce results on time for emergency relief operations or early warning alerts. Moreover, developing countries affected by emergencies do not generally have the expertise to establish appropriate and timely data collections.

FAO has established a number of channels through which non-official emergency data are collected. The Global Information and Early Warning System[[12]](#footnote-12), for instance, draws on information from a diverse and broad range of non-official data sources, including news agencies, extension services, and satellite imagery. These non-official estimates are then used to extend official statistical series of production, trade, and use of foodstuffs and are, at a later stage, reconciled with official series. Another example is the price data collection tool pioneered by the FAO Statistics Division for early warning purposes. It provides a platform to collect prices for food, agricultural inputs and outputs on retail or wholesale markets through crowd-sourcing and submit them with their geo-code and in real time to an FAO server. The application has already been tested under emergency situations and is used by a growing number of farmers to find the best prices to purchase inputs and sell products. When sufficiently widely adopted, it can become the basis for a global, real-time and geo-referenced food price monitoring system that enables policy makers to monitor price swings on international markets and their transmission to local settings. It can be extended from a simple price application to a tool that helps gauge the development stage of crops, measure the size of the cropland, predict harvests, or monitor the prevalence and movements of pests and diseases.

1. **The “Voices of the Hungry” Project as a Case Study**
	1. *Introduction*

Monitoring food insecurity in a timely, reliable and consistent way worldwide is crucial to help countries and development partners to assess progress in fighting hunger, to establish baselines and targets for hunger reduction and to monitor the impact of policies and programs on food security.

The Post 2015 Development Agenda requires the creation of new indicators of food security, in particular on access to sufficient and nutritious food, that will have to be produced on a real-time, high-frequency and internationally comparable basis. Given the need to also analyse and monitor inequalities within countries, these indicators will have also to be produced for all main population groups and geographical locations. These conflicting information needs cannot be satisfied with national official sources in the short to medium term, in view of the limited statistical capacity of many developing countries, but also because the necessary institutional arrangements are not in place to address these emerging demands. To gather this data, countries would need to conduct extensive surveys based on very large samples on an annual basis, which would not be cost-effective, if feasible at all. In fact, the capacity to produce and disseminate many development indicators is still weak and mostly dependent upon the support or initiatives of IOs. Moreover, from the global monitoring perspective, the surveys will have to be conducted in a methodologically consistent way across all countries.

In order to enable FAO to fulfil its mandate of monitoring food security at the global level and to respond to the need of the Post 2015 Development Agenda, the Organization has launched the “Voices of the Hungry” Project. With this initiative, new data on food security are directly collected by FAO through an annual survey conducted in over 150 countries worldwide. The information gathered permits the measurement of food insecurity from the perspective of the people who experience it directly and personally. This can be done by benefiting from the experience that has been accumulated in the past twenty years on the use of food insecurity experience scales, most notably in the Northern and Latin America. Despite the fact that the methodology is already sufficiently developed, its use has not yet spread to other regions. The main objective of this project is to fill this gap.

* + 1. *Methodology Adopted and its Benefits*

Data is collected through a tailor-made questionnaire included in the Gallup World Poll™, an annual survey regularly conducted by the polling specialists Gallup, Inc. in more than 150 countries. It is based on nationally representative samples and respondents are requested to answer eight questions designed to reveal whether and how they have experienced food insecurity in the previous 12 months. The biggest advantage of using this type of scale is that it permits a direct measurement of the severity of food insecurity in a timely and cost-effective way.

The derived indicators will ensure timely monitoring of the prevalence of people experiencing food insecurity for all developing countries in the world on an annual basis, and will assess food insecurity experiences at the individual, as well as household level, thus allowing proper analysis of gender related food insecurity disparities. It can also help to assess emergency needs after a famine or a natural disaster. In addition, it will form an essential component in the FAO suite of indicators, and will ideally, be one of the key indicators of the new monitoring framework of the post-2015 development agenda. It is expected that governments will adopt this indicator for monitoring national food security trends, for targeting interventions, and for measuring the impact of national policy and programme implementation.

* + 1. *Mechanisms in Place for Quality Assurance*

Several steps have been taken to ensure the quality of the data collected.

The selection of the data collection service provider has been conducted through an evaluation of existing potential suppliers according to the strict procurement rules of the UN system. Proposals were scrutinized from a methodological point of view and it was confirmed that the proposed sampling approach conforms to international standards.

In order to validate the FIES methodology and to verify that the Gallup World Poll would be an appropriate vehicle for the questionnaire, the data collection was initially tested in four African countries (Niger, Angola, Ethiopia and Malawi) on a pilot basis. Only after having confirmed the success of the pilot, the full-scale data collection started in 2014. As soon as data becomes available, FAO will carry out extensive validation studies to identify a standard universal scale, which can provide measures that are comparable across countries and regions around the world.

FAO maintains full responsibility for the approval of each linguistic version of the questionnaire and has developed the methodology used to process the data. The psychometric model used to obtain the food insecurity measure, in particular, is a strong tool for data quality assurance as it tests the internal coherence of the responses and identifies potential problems in the data collection process.

Technical operations related to translation of the questionnaire, enumerator training and data validation are followed closely by a joint project team composed of FAO and Gallup professionals who meet on a regular basis.

In order to ensure the sustainability of the project FAO has signed an agreement with Gallup Inc. for an initial term of five years. It is also worth noting that in 2011 the World Bank Gallup entered into a similar long-term agreement with Gallup Inc., adding a module on financial inclusion and access to credit to the World Poll. In parallel, FAO will assist countries to include the Scale in their national household surveys and eventually hand-over these functions to them. These efforts will hopefully lead to the establishment of a new-certified standard for food security monitoring that will be adopted by the majority of countries and contribute towards improving the monitoring of food insecurity on a global basis.

Finally, FAO will make all the micro data and the methodology for their analysis publicly available, thus providing an opportunity for all users to review data quality and to test the robustness of the results.

* + 1. *Issues of Potential Concern*

At the moment very few countries use experience-based food security indicators like the FIES in their national monitoring systems. One of the possible concerns that these countries, such as Brazil, may have regarding the use of data collected by FAO with the Voices of the Hungry project is that the results may differ from those obtained at national level. In the case of experience-based food security indicators, however, the fundamental homogeneity of the concept of severity of food insecurity, which informs all existing scales (such as the HFSSM, the HFIAS, and the ELCSA), allows an integrated analysis of data collected in different surveys.

Open access to the Voices of the Hungry microdata and to the methodology used to compile the indicators will thus provide the concerned national institutions with the opportunity to process their data vis-à-vis FAO data, and to make sure that indeed there are no discrepancies other than those which may be due to the different sample sizes.

1. **Reflections and Conclusions**

As described in this paper, IOs fulfil a specific function in the global statistical system as provider of relevant global public goods in the form of internationally comparable data and statistics. They add value to the official data that countries report to them and, under certain circumstances, there are compelling reasons for IOs to incorporate non-official sources in their work. When quality conditions are met, the choice between using official or non-official data (or a combination of both) in the production of international statistics must be based exclusively on professional considerations.

In particular, IOs have a clear role to play in addressing potential information gaps in official sources arising from changes in user-needs. The rapidly changing economic and social environment may require IOs to also play, at least on an interim basis, the role of developing innovative approaches and of directly collecting and disseminating data.

In the case of FAO, the Post 2015 Development Agenda requires the creation of new indicators of food and nutrition security. In order to address this information gap, and in particular in support of the global monitoring function of new food security indicators, FAO has recently launched the “Voices of the Hungry” project. In the short to medium term, NSS are simply not sufficiently equipped to collect the necessary real-time and high-frequency data, which also needs to be comparable internationally.

However, in the long-term it will be far more sustainable to build on and strengthen the existing national institutions, and to eventually hand-over these functions to countries as the result of targeted capacity development initiatives. IOs may therefore need to further prioritize and strengthen their statistical capacity development programme delivery activities at country and regional level.

Specific mechanisms have been put in place with the Voices of the Hungry project to guarantee the quality of its results. The selection of the supplier, the validation and pilot testing of the methodology, the supervision and monitoring of the field operations, the sustainability of the project and open access for all users to the survey micro-data and to the survey methodology provide a quality stamp that can ensure and maintain the trust of users over time, while meeting their needs in a timely way.

On occasion, the use of non-official sources may create tension between IOs and NSS. Countries may not always agree, and sometimes may not like, the results that emerge, particularly if they contribute to decisions that offer advantages and opportunities for some countries and not others.

Processes and instruments therefore need to be in place to mitigate this tension. In particular there is a need for strengthened statistical governance mechanisms whereby member countries can discuss and endorse the statistical programs of a given IO in advance and peer-review the data before they are published. At FAO, for example, a proposal to establish a Global Commission on Statistics is being considered by the FAO Governing Bodies with the goal of having it endorsed at the FAO Conference in June 2015.

1. Report on the thirty-seventh session, E/2006/24 E/CN.3/2006/32, p. 2, <http://unstats.un.org/unsd/statcom/doc06/Report-English.pdf> [↑](#footnote-ref-1)
2. Report on the forty-second session, p. 14, <http://unstats.un.org/unsd/statcom/doc11/Report-Final-E.pdf> [↑](#footnote-ref-2)
3. <http://unstats.un.org/unsd/accsub-public/practices.pdf> [↑](#footnote-ref-3)
4. “The use of non-official data in imputations/estimations of International Organizations”, prepared by WTO for the Committee for the Coordination of Statistical Activities, Fourteenth Session, SA/2009/8 and Sixteenth Session, SA/2010/14. “Best Practices on the use of non‐official sources in international statistical series”, prepared by UNODC for the Committee for the Coordination of Statistical Activities, Twentieth Session, SA/2012/8. [↑](#footnote-ref-4)
5. <http://www.fao.org/economic/ess/ess-fs/voices/en/> [↑](#footnote-ref-5)
6. SDMX Content-Oriented Guidelines, ANNEX 4, p. 99, <http://sdmx.org/wp-content/uploads/2009/01/04_sdmx_cog_annex_4_mcv_2009.pdf> [↑](#footnote-ref-6)
7. FAO’s Medium Term Plan, p. 12, <http://www.fao.org/docrep/meeting/027/mf490e.pdf> [↑](#footnote-ref-7)
8. FAO’s Statistics Quality Assurance Framework builds on the “Fundamental Principles of Official Statistics” (UNSC) and the “Principles Governing International Statistics Activities” (CCSA) [↑](#footnote-ref-8)
9. http://www.fao.org/docrep/019/i3664e/i3664e.pdf [↑](#footnote-ref-9)
10. <http://faostat.fao.org/> [↑](#footnote-ref-10)
11. FAO has in fact brokered a process where the IFA makes information available under certain conditions, which still allows fertilizer balances at regional level to be estimated. [↑](#footnote-ref-11)
12. http://www.fao.org/giews/english/index.htm [↑](#footnote-ref-12)