| FAO | منظمة الأغذية والزراعة للأمم المتحدة | 联合国 粮食及 农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Alimentación y la Agricultura |

E

Asia and Pacific Commission on Agricultural Statistics

| **Twenty-Sixth Session** |
| **Thimphu, Bhutan, 15-19 Feb 2016** |
| **Agenda Item 8** |
| **The System of Environmental-Economic Accounting for Agriculture, Forestry and Fisheries (SEEA Agriculture)** |

Contributed by: *Francesco N. Tubiello, Senior Statistician*
Statistics Division, FAO
francesco.tubiello@fao.org

Abstract

The emerging System of Economic-Environmental Accounting for agriculture, forestry and fisheries (SEEA-Agriculture) proposes a coherent and statistical robust framework for environmental accounting, to link agri-environmental indicators, input, production and pollution statistics to more easily monitor the joint environmental and economic performance of agriculture in member countries. In the course of intense preparatory work since 2013, the SEEA-Agriculture has been recognized by the UN Statistical Commission, international and national partners as very useful for the definition of policies designed to provide an effective incentive structure for sustainable management of natural resources, ensuring that national agricultural practices are developed and implemented in a holistic approach. To this end, the UNSC has suggested that SEEA-Agriculture could provide as a valid framework for the consistent, transparent and internationally comparable development and monitoring and many SDG indicators relevant to agriculture.

The FAO Statistics Division is currently working on the development of the SEEA-Agriculture for national use. At the same time, a phased approach to country implementation is presented, based at its simplest, default level on utilization of a full set of environmental and economic data and indicators within FAOSTAT.

I.   Introduction

The agricultural sector faces increased environmental challenges linked to meeting increased food and energy demand from continued socio-economic growth around the world. The related increases in inputs of energy, chemical products, and agricultural labor necessary to meet such demand and its continued increases over the next decades, can provoke serious damages to the environment, via soil degradation, air, soil and water pollution, including greenhouse gas emissions, and loss of biodiversity.

The adoption of long-term environmentally-sustainable production methods is therefore a major objective in today's agriculture, considering that massive increases in crop, livestock, forestry and fisheries production were often achieved in the past at the expense of the environment. A renewed environmental goal is necessary, especially in view of the new post-2015 Sustainable Development Goals (SDGs), towards achieving conservation of the natural resources upon which agriculture depends.

The emerging System of Economic-Environmental Accounting for agriculture, forestry and fisheries (SEEA-Agriculture) proposes a coherent and statistical robust framework for environmental accounting, to link agri-environmental indicators, input, production and pollution statistics to more easily monitor the joint environmental and economic performance of agriculture in member countries. In the course of intense preparatory work since 2013, the SEEA-Agriculture has been recognized by the UN Statistical Commission, international and national partners as very useful for the definition of policies designed to provide an effective incentive structure for sustainable management of natural resources, ensuring that national agricultural practices are developed and implemented in a holistic approach. To this end, the UNSC has suggested that SEEA-Agriculture could provide as a valid framework for the consistent, transparent and internationally comparable development and monitoring and many SDG indicators relevant to agriculture.

The FAO Statistics Division is currently working on the development of the SEEA-Agriculture, including utilization of its full set of environmental and economic data and indicators within FAOSTAT[1]. At present, FAOSTAT contains global coverage of integrated and compatible time series of statistics for about 200 countries covering agricultural production, prices, trade, forestry, fisheries, land use and agricultural inputs, agri-environmental indicators, and emissions.

II. Current Status of Collecting and Compiling Resource Statistics in Asia-Pacific

Statistics on land use are required for making economic plans and policies related to food security and for deriving environmental indicators. Agri-environmental statistics are compiled by FAO through a variety of methods such as censuses, surveys, remote sensing, administrative records, questionnaires and monitoring and network facilities for the development of environmental indicators and assessments. The data published in FAOSTAT on land, labour, water, fertilizers, pesticides etc., are compiled through the FAO agriculture resources questionnaires for building resources accounts and vital for environmental analysis. The data collected, however, are not adequate for directly assessing the environmental impact

---

[1] http://faostat.fao.org

of social and economic activities. In addition, the data reflect national averages and aggregates while environmental problems are, in most cases, site and time specific. In brief, data published in FAOSTAT are not totally geared towards environmental problems since the primary datasets were not originally collected for that purpose. These deficiencies are being addressed and some of the measures are discussed in further details in section V.

The FAO Statistics Division collects and disseminates data based on the following:

- Land use questionnaire: with the following categories: Country area (including area under inland water bodies), Land area (excluding area under inland water bodies), Agricultural area, Arable land and Permanent crops, Arable land, Temporary crops, Temporary meadows and pastures, Fallow land (temporary: less than 5 years), Permanent crops, Permanent meadows and pastures, Forest area, Other wooded land, Other land covering the country as a whole. Data are also available on Area equipped for irrigation, etc.

- Fertilizer questionnaire requests official data on production, trade and use for crop production. The information presented represents a broad picture of the situation regarding official data gathered on fertilizers statistics.

- Pesticides questionnaire requests data on consumption for major groups of pesticides (insecticides, herbicides, fungicides, plant growth regulators and rodenticides) and seed treatments.

A regional review and assessment on the latest FAO questionnaires with respect to official data reported by countries on selected agriculture resources data domains (land use, fertilizers and pesticides) in terms of latest year reported and percentage of data items reported as compared to totals items is provided in a separate paper.

III. Current activities and Future Directions:
The System of Economic-Environmental Accounting for Agriculture, Forestry and Fisheries

Background

The development of a *System of Environmental-Economic Accounting for Agriculture, Forestry and Fisheries* (SEEA-Agriculture) was first proposed by the FAO in 2010 and promptly endorsed by the *UN Committee of Experts on Environmental-Economic Accounting* (UNCEEA). The SEEA-Agriculture extends and applies standard accounting rules of the *System of Environmental-Economic Accounting Central Framework (SEEA-CF) and the System of National Accounts (SNA),* aimed at integrating economic and environmental information relevant to agricultural activities. In particular, the SEEA-Agriculture provides a number of accounting tables covering a range of data domains relevant to agriculture, forestry and fisheries activities, which can be easily integrated into combined presentations, as a basis for the measurement of meaningful, coherent and comparable agri-environmental and other indicators.

Substantive work on the construction of the SEEA-Agriculture commenced at FAO in June 2013, by designing the accounting tables and by assessing the related data availability within FAO databases, including FAOSTAT. The feasibility of compiling the accounts and the

relevance of the information was tested and further refined via specific engagement with four pilot countries: Australia, Canada, Guatemala and Indonesia.

Based on these lines of work, a draft SEEA-Agriculture was elaborated and discussed internally within FAO, presented and discussed at an *Expert Group Meeting*, held in Rome on October 7-8, 2014. The meeting involved representatives from SEEA pilot countries, as well as relevant experts from Eurostat, OECD, UNSD, and FAO.

Based on the above processes, an updated SEEA-Agriculture draft was submitted for initial global consultation in December 2014, concluding at the end of January, 2015. Constructive feedback was received from more than 30 experts in National Statistical Offices and international agencies on the scope, coverage and content of the SEEA-Agri.

Subsequently in 2015, revised drafts of the SEEA Agriculture were presented at the UN Statistical Commission, at the 2015 UN Committee of Experts on Economic-Environmental Accounting (UNCEEA), and at the London City Group, including the Technical Committee on SEEA Central Framework. The expert meetings resulted in positive feedback on current work on SEEA-Agriculture and generated productive cross-agency engagement, with various departments and technical agencies engaged in discussions on the use of SEEA within national statistical systems.

The expert consultations to date have concluded that the SEEA-Agriculture framework, in providing a strong as well as practical basis for building enhanced national statistical systems bringing together relevant economic and environmental accounts, may provide a robust basis for the development of indicators under the Post-2015 Sustainable Development Goals process, representing a transparent framework to define and measure sustainability of natural resources. The work on the development of the SEEA-Agriculture has been funded by the *Global Strategy to Improve Agricultural and Rural Statistics* (GSARS) as part of their research program. Hence the SEEA-Agriculture draft was subsequently discussed by the *Global Strategy's Scientific Advisory Committee*, at their meeting in November 2014. The involvement of GSARS is in line with its own mandate towards improving the measurement of the links between agricultural activity and the environment. Following this process, an interim version of the SEEA Agriculture work was published by the Global Strategy in Aug. 2015 (http://www.gsars.org/system-of-environmental-economic-accounting-2015/).

Finalisation of SEEA-Agriculture

The Global Strategy publication was the base for a final round of expert consultations in the second half of 2015, involving FAO as well as all relevant international organizations. As a result, the current draft developed much further the content of country implementation of SEEA-Agri. In particular, building on the decadal experience of the international climate processes, in relation to the development of guidelines for national greenhouse gas inventories, as well as considering approaches to the improvement in national accounting methods, the updated SEEA-Agriculture intends to introduce the concept of '*Tiers*' in relation to the construction of statistical tables and their analysis.
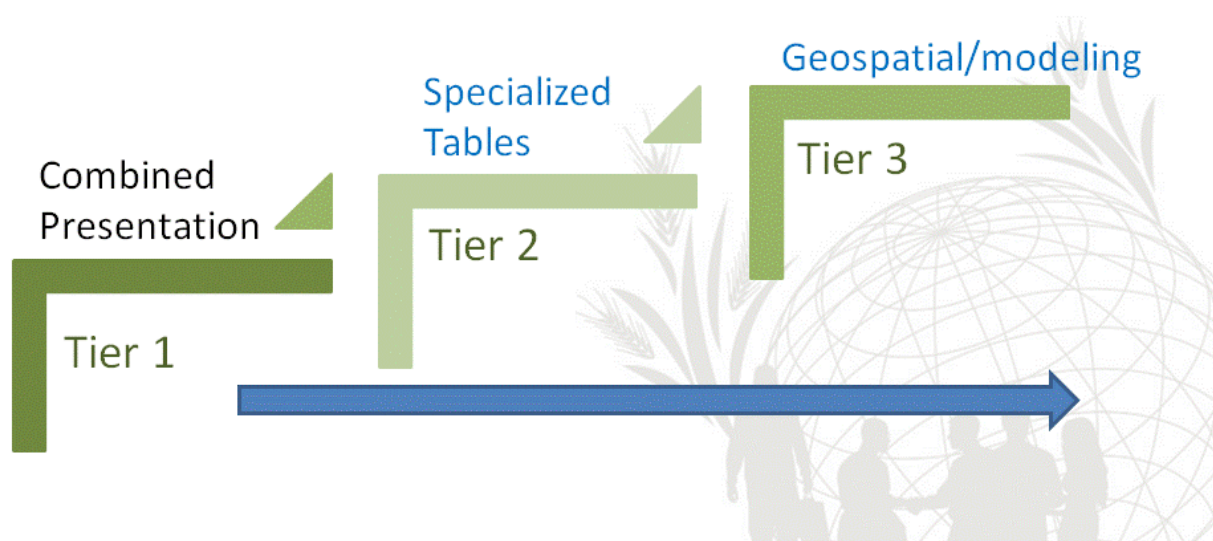
With this approach, SEEA-Agriculture implementation in member countries can proceed gradually, based on the current status of national statistical processes, through the use of readily available national agriculture statistics. A basic, Tier 1, approach provides a reference starting point for data and methods, in the first instance using the official national statistics communicated by countries to FAO via FAOSTAT, to fill basic SEEA-Agriculture combined presentations. These presentations can be used to promote discussion on the usefulness of

SEEA-Agriculture within policy agencies and on the feasibility of compiling the SEEA-Agriculture base accounts with statisticians. Through the identification of policy priorities and data gaps countries may then build towards Tier 2 and Tier 3 SEEA-Agriculture through increasingly advanced data and methods.

A Tiered SEEA-Agriculture approach allows any developing member country, irrespective of its level of statistical capacity, to begin implementing basic SEEA-Agriculture analyses, using as default the set of national agricultural, forestry, fisheries and other statistics readily available at FAO, for instance via FAOSTAT, and other relevant international databases. Such default information and the set of associated preliminary indicators available through combined tables, can subsequently be used to inform dedicated capacity development, i.e., as a base for a constructive agency dialogue on enhanced national statistical systems, needed to address nationally relevant issues.

Once countries become capable of implementing higher Tier SEEA-Agriculture analyses—as well as in countries that already possess that capability—the SEEA-Agriculture Tier 1 approach provides for a standard reference for domestic and international quality assessment and quality control (QA/QC) processes that are transparent, comparable, complete, coherent and accurate.

A draft of the SEEA-Agriculture that incorporates these two developments (i.e. the resolution of technical matters and the explanation of the Tiered approach to implementation) was submitted in early November to UNSD, and underwent a second round of global consultations from Dec 15 2015 to end Jan 18 2016, leading to a final revised version to be completed by mid-February 2016, for submission as a background document to the March 2016 UNSC

meeting. In order to support the final stages of review, the SEEA Central Framework Technical Committee has agreed to serve as Editorial Board (following the model used for the volumes of SEEA 2012), overseeing that feedback from the second global consultation is appropriately considered and reflected in the final document.

Implementation of SEEA-Agriculture

Overall, the planned SEEA-Agriculture implementation activity is based on experience of relevant agencies such as UNSD, UNEP and FAO, concerning the SEEA CF and relevant SEEA satellites (e.g., SEEA Water, SEEA Energy). SEEA-Agriculture implementation also benefits naturally from the large body of additional experience on capacity development for agriculture statistics matured at FAO, in the context of other relevant international processes, including regional statistical commissions, the international climate processes, and significantly, the current work in support of the post-2015 Sustainable Development Goals (SDGs). The latter is particularly relevant, as it has been suggested by multiple stakeholders, and including within the UNSC, that the SEEA CF and thus SEEA-Agriculture could provide a reference framework to help define relevant indicators needed to monitor progress on SDG targets.

The SEEA-Agriculture is furthermore a specific theme within FAO's Inter-Departmental Working Group on Climate Change (IDWG-CC) activities.

Feasibility studies of the national implementation of SEEA-Agriculture were conducted in 2014 in four pilot countries, namely Canada, Australia, Indonesia and Guatemala. In each, linkages with National Statistical Offices were established and missions conducted in Guatemala and Indonesia. National SEEA-Agriculture focal points were identified and the feasibility of compiling SEEA-Agriculture accounting tables was assessed. An additional pilot country for additional feasibility piloting, is currently being planned in Kenya. The new pilot will focus on the feasibility of the proposed SEEA-Agriculture Tiered approach to implementation. Findings will be collected into a set of lessons learned and practical recommendations, to be published in parallel with the final SEEA-Agriculture. Additional piloting with practical implementations of Tier 1 SEEA-Agriculture activities are planned for 2016, in coordination with existing and planned UNSD SEEA activities. For instance, FAO has joined the UNSD SEEA Regional Workshops planned for the next biennium, with a first presentation on SEEA Agriculture delivered at the Asia-Pacific SEEA Workshop organized jointly by UNSD and the Chinese National Bureau of Statistics (Shanghai, Nov 16-18 2015). Secondly, FAO will actively seek for SEEA Agriculture country pilots, to progress on country implementation modalities and gather lessons learned towards an implementation guide. The first of such new country pilots has begun in Oct 2015 in Uruguay. Of particular interest is the inclusion of several pilots in Asia-Pacific, possibly in coordination with the regional partners of the Global Strategy.

IV. Conclusions

The planned SEEA-Agriculture implementation will put an emphasis on progressive phases through implementation of successive tiers, depending on national capacity. Practical guidelines for country work will focus on work starting with a tier 1 approach, providing direct linkages with available FAO statistical information, as a base for further national-level analysis and identification of steps needed to proceed to higher Tier SEEA-Agriculture implementation. Progress at national level will in turn benefit the international process,

insofar as improved national statistics lead to improved quality and coverage of FAO databases, including FAOSTAT.

To this end, a first set of generic guidelines for Tier 1 SEEA-Agriculture implementation, to be followed by more detailed guidelines for national work, will be included in Ch. 5 of the SEEA-Agriculture Draft for Global Consultation. Support material will include a Global Combined presentation that can be filled with available FAOSTAT data as a default.

In the development of materials to support implementation of SEEA-Agri, close links will be made to existing and developing SEEA guidance including SEEA Technical Notes and the SEEA Implementation Guide, and also guidance on accounting for agriculture, forestry and fisheries that has been developed by relevant international agencies.

The work on SEEA-Agriculture has encouraged connections to a range of measurement and analytical initiatives. While continuing to develop the link with relevant research work performed by other agencies, including a special focus on land cover, land use and soil data statistics. Preliminary assessment on SEEA-Agriculture and accounting for soil resources were undertaken in 2014 and additional work on these topics is planned in 2016.

The long-term ambition of the SEEA Agriculture at country level is not only to sensitize on environmental-economic statistics and their fundamental links to the SNA accounting systems, but to realize a process of capacity development and strengthen collaboration among the FAO and the country, the real owner of information and knowledge. The SEEA-Agriculture aims to utilise this national data and to establish a stable flow of information sharing with the country. The experience matured to date through the four pilot case studies suggests that such goals are possible. SEEA-Agriculture is in fact adopting a flexible and modular approach, allowing to NSOs to compile and share information and data that are both nationally relevant and embedded in an internationally comparable framework, recognizing that improved agricultural statistics, including cross-linkages facilitating analyses with relevant economic and environmental variables are necessary to facilitate analysis towards more effective rural development and food security policies.

In conclusion, based on the material presented at APCAS, including oral presentations and follow-up discussions, APCAS delegates are asked to deliberate on the following key issues, whether to:

- Support and endorse the ongoing progress on finalization of the SEEA Agriculture, with clear timelines and milestones towards submission to UNSC for adaption in Mar 2016

- Support and endorse the proposed country implementation strategy, characterized by a phased approach, from the use of simple yet robust national statistical information available to FAO from member countries, to the development by member countries to more complex statistics based on sub-national data, with FAO support and respecting country capacity and priorities

- Support and endorse FAO's proposed strategy for exploring, together with member countries and in collaboration with UNSD, the usefulness of SEEA Agriculture

towards development of SDG indicators within a coherent, transparent and comparable monitoring framework