



Food and Agriculture
Organization of the
United Nations

SDG INDICATOR 2.4.1
PERCENTAGE OF AGRICULTURAL AREA
UNDER PRODUCTIVE AND SUSTAINABLE
AGRICULTURE

EXPERT MEETING

Rome, Italy, 3-5 April 2017

SUMMARY REPORT

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EXPERT MEETING ON SDG INDICATOR 2.4.1

FAO Headquarters

3-5 April 2017

SUMMARY REPORT

Introduction

There has been considerable discussion over the past thirty years on how to define “sustainable agriculture.” During most of this period, sustainability was exclusively considered an environmental issue and was therefore measured as such. The 2030 Agenda requires that all sectors, including agriculture, be considered from the point of view of the three dimensions of sustainability: economic, social and environmental. This multidimensional role of agriculture requires it to be seen and analysed in a more holistic and broader context than in the past; that is, to include social, environmental and economic dimensions underpinned by governance and resilience.

SDG indicator 2.4.1, which is under the custodianship of FAO, will capture these multidimensional aspects once developed, validated, endorsed and operationalized. SDG 2.4.1 has been categorized as a Tier III, which means it does not yet have an internationally recognized methodology nor time series of data. As part of this responsibility, FAO has been tasked with leading the work on developing a methodology for this indicator, which is defined as the “percentage of agricultural area under productive and sustainable agriculture”, where agricultural area is defined as arable land, permanent crops and permanent meadows and pastures. The numerator must be adequately aligned with sustainable food and agriculture and therefore capture these three dimensions: environment, economic and social.

The initial concept was endorsed in March 2016 by the Inter-Agency and Expert Group on SDG indicators (IAEG-SDG) and is summarized in a two-page metadata note. The methodology has been further refined through technical consultations and has been included in an expanded methodological note¹. The document presents a comparison of previous attempts to develop a similar indicator and practices to define sustainable agriculture; a proposed framework, with a selection of metrics by dimension and possible thresholds; the steps for calculating the indicator; and data collection strategies.

¹ http://www.fao.org/fileadmin/user_upload/faoweb/sustainability/Doc/Methodological-concept-note.pdf

Objectives

The purpose of this workshop was to bring together technical experts and statisticians to provide guidance and support to the methodological work being conducted for SDG indicator 2.4.1. This included providing input and feedback to the draft concept note. In particular, there was significant attention dedicated to reviewing the sub-indicators by dimension, their calculation and data collection, and how to combine them to compute the indicator.

Expected outputs

The results from the meeting will be used in guiding the final draft of the concept note, which will be tested through desk studies, peer-reviewed, amended and put forward for final approval and endorsement by the IAEG-SDG. Once the methodology has been approved, FAO and other partner organizations will start preparing data collection guidelines and producing training material in order to support countries in their monitoring efforts.

Agenda, location and dates

The expert meeting took place at FAO Headquarters in Rome, Italy, from 3 to 5 April 2017. The agenda of the workshop is presented in Annex 1.

Participants

The participants, totaling approximately 50 people, included statisticians and technical experts from countries, international organizations, national statistical offices, civil society and the private sector. Experts from national statistical offices included Uganda, China, Indonesia, Kyrgyz Republic, Burkina Faso, the United States, Italy and Brazil. Participants also included experts from the following FAO's technical divisions: Climate and Environment; Land and Water; Animal Production and Health; Plant Production and Protection; Statistics; Social Policies and Rural Institutions; and Partnerships, Advocacy and Capacity Development. The list of participants is presented in Annex 2.

Day 1

The first session of the meeting provided the context for the three day event. The purpose was to give information about FAO and its role in sustainable agriculture and the SDG monitoring process. It also provided participants with the core set of information necessary to engage the discussions planned over the three days. This included the indicator process thus far, the current methodology, and a review of definitions/terminology.

FAO's sustainable agriculture programme (Clayton Campanhola)

Clayton Campanhola, FAO's Strategic Programme Leader for Sustainable Agriculture (SP2), discussed how the SDGs are an integral part of FAO's strategic framework and how the work of the organization is now fully aligned with the SDGs. He recommended that, for 2.4.1, there be an indicator that is practical, simple and affordable, stressing that, for sustainable agriculture, we must keep in mind principles that are part of a broad concept: efficient resource use; conserving, enhancing and protecting ecosystems; protecting and improving rural livelihoods and social well-being; enhancing resilience; and improving governance. He also highlighted that integrated

measurement in this area is relatively new and stressed the importance of the joint contribution from statistical and agricultural experts.

[SDG monitoring and the role of FAO \(Pietro Gennari\)](#)

Pietro Gennari, FAO's Chief Statistician, presented how the SDG process is unfolding and the indicators for which FAO is custodian. The SDG monitoring process is being managed by the United Nations Statistical Commission. The UNSC created an inter-agency and expert group (IAEG-SDGs) made up of member states to help develop an indicator framework for the goals and targets. There are currently 230 unique indicators, and many are considered Tier III (i.e. no internationally agreed methodology). These are the most challenging indicators for UNSC, as they require new methodological development. The review and upgrade of the indicators will now either take place in October 2017, in which case monitoring will commence from 2018 or as part of a broader review of indicators to be completed by 2020. There is thus an urgency to establish a viable and international endorsed method in time for the submission in October 2017.

FAO serves as custodian of 21 indicators, one of which is 2.4.1. As part of this process, FAO relies on experts to help on methodological development for Tier III indicators. To give the greatest priority to this work, FAO has recently established the Office of the Chief Statistician, which has the primary task of advancing the SDG indicators in terms of methodology, collection and capacity development). SDG 2.4.1 is one of the key indicators in this process and will have implications for other indicators that have a sustainability dimension.

[The Global Strategy and its role in supporting the SDG agenda \(Christophe Duhamel\)](#)

The Global Strategy is a global partnership initiative with the goal of strengthening statistical capacities in countries. The main aim of the partnership is to develop tools and methodologies, which are transformed into guidelines and training materials to collect data. This is to help support countries who often have limited resources and capacity for statistics. Together with FAO's SP2, the Global Strategy contributes expertise and financial resources in the development of the methodology for SDG indicator 2.4.1.

[Meeting expectations and introductions \(Jean-Marc Faurès\)](#)

The overall objective of the meeting was explained, highlighting the challenging nature of creating an indicator to measure and monitor "sustainable agriculture" and describing the three-day agenda. All participants then briefly introduced themselves, an exercise that also emphasized the group's significant diversity of geographical background and expertise.

[Developing indicator 2.4.1: the process thus far \(Amy Heyman\)](#)

This presentation provided a summary of the process that has led to the preparation of the methodology document submitted to the Expert Meeting. In 2015, FAO submitted a proposal for indicator 2.4.1 reflecting the percentage of agricultural area under sustainable agricultural practices. Discussions in the IAEG-SDG showed the importance of proposing an indicator that was flexible enough to ensure that it would capture all the dimensions of sustainability and make sure that it was meaningful to all countries. In 2016, the final proposal, "percentage of agricultural area under productive and sustainable agriculture" was approved. It moved away from practices because it would have been difficult to reach consensus, and focused on

outcomes, covering the different dimensions of sustainability through a set of sub-indicators. Criteria used for the selection of sub-indicators included: policy relevance ‘actionability’, universality, comparability, cost effectiveness, and ensuring limited overlap between indicators.

Presentation of the draft methodology (Carl Obst)

The intention is to produce a threshold-based aggregate indicator. This entails determining key themes of sustainability and associated sub-indicators and thresholds for each of these. A farm, which is the preferred unit of measurement, would then be “sustainable” if it satisfies the threshold criteria for all sub-indicators. The methodological overview consists of 8 major steps: scale of sustainability, scope of activities, coverage of dimensions, selection of themes, choosing sub-indicators, defining thresholds, assessing sustainability and aggregating. Based on a technical consultation, the following themes (and sub-indicators) have been proposed:

- Economic: labor productivity (farm volume of agricultural production per hours worked); land productivity (farm volume of agricultural production per farm area); farm profitability (net farm income)
- Environment: soil resources (rates of soil erosion and soil organic carbon); water use (water abstraction for agriculture from surface and groundwater per available water); water quality (fertilizer and pesticide use in excess)
- Social: decent work (working poverty rate for employed in agriculture); household income and poverty (rural poverty headcount ratio at national poverty lines); household/farm resilience (TBD)

Sources for data collection at farm level vary, from farm/household surveys, which is the favored approach, to GIS and remote sensing, to biophysical models.

There is ongoing work to conceptualize and propose relevant thresholds for each sub-indicator.

In looking forward, it will be necessary to provide a structured and transparent framework; have ongoing discussion of sustainability and its link to policymaking, focus on outcomes; link to measurement of other SDG indicators; and use and integrate available data as far as possible. It will also be necessary to have a baseline for testing and development.

Definitions and terminology (Arbab Asfandiyar Khan)

The purpose of this presentation was to agree on a common understanding of the indicator among the participants and to establish a shared language. This included defining the indicator and how it fits into the SDG tier system as Tier III. It presented the hierarchical levels of the indicator, as shown in the figure below, and also provided an overview on constructing and reporting on the indicator.

Indicator 2.4.1.	Used	Other Terminologies
Dimension	Economic	Aspect (Van calker <i>et al.</i> , 2007) Domain (Bausch <i>et al.</i> , 2014) Pillar (Van Cauwenbergh <i>et al.</i>
Theme Sub- theme	Economic viability Profitability	Component (Belanger <i>et al.</i> , 2012) Issue (De Boer & Comelissen, 2002) Attribute (Van calker <i>et al.</i> , 2007) Principle (Van Cauwenbergh, 2007) Impact category (Haas <i>et al.</i> , 2000)
Sub-indicator	Net Farm Income	Parameter (Guerci <i>et al.</i> , 2013)
Variables	Cash receipts, Operating expenses etc.	Factors / Elements

Discussion in plenary

The plenary session allowed for a first interaction and clarification on the proposed methodology. Several participants discussed the challenge of determining thresholds and the difficulty in establishing limits, when possible, that are meaningful to all countries. There was also some debate about the three dimensions, including whether or not they should be limited to three (social, economic and environmental), or if was possible to include other dimensions (e.g. governance, resilience); on which sub-indicators should be included in each of the three dimensions; and under which dimension some sub-indicators fall. Participants also questioned what the unit of measurement would be. The initial proposal has been the farm, but participants also flagged other options like household, landscape and watershed. It was repeatedly emphasized that the indicator should be kept as simple as possible.

Poster session

The expert meeting included a session to allow some of the participants to present their related or recommended approaches for measuring sustainable agriculture. Five different methodologies/instruments were presented with posters and a brief explanation to highlight the salient points. The topics were first introduced in plenary, and then participants rotated around the room to learn about the selected methodologies.

The following methodologies/instruments were presented during this session:

- Agricultural Integrated Survey (AGRIS)
- CARE International SuPER food systems (Sustainable, Productive, Equitable, and Resilient)
- Global Bioenergy Partnership (GBEP)
- International Agri-Food Network (IAFN) composite indicator
- Sustainability Assessment of Food and Agriculture Systems (SAFA)

Annex 3 provides more details about each methodology/instrument.

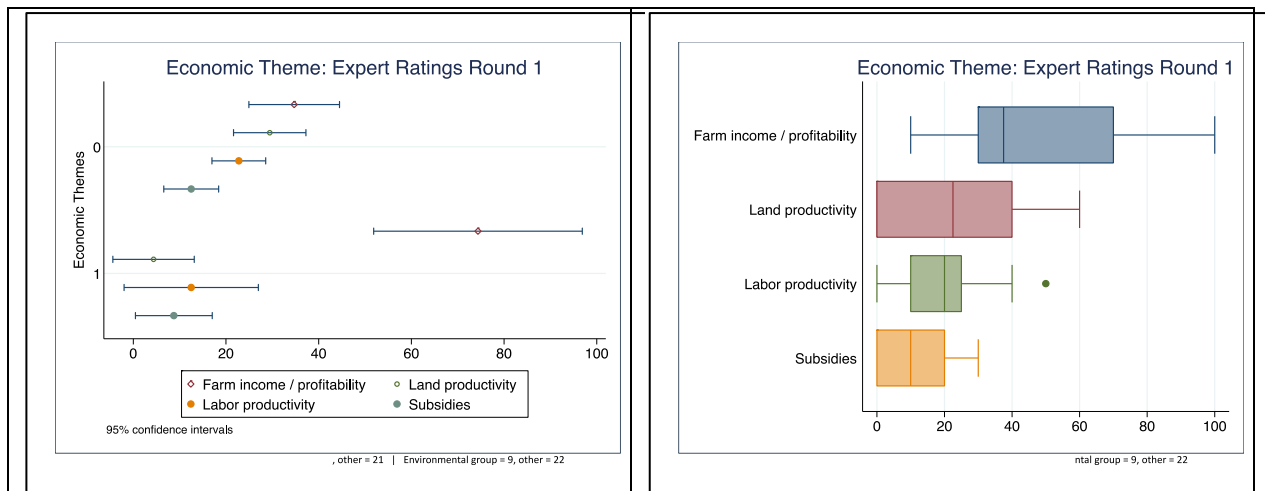
Session 1. Group work: Sub-indicator selection and ranking exercise

The purpose of this session was to engage in detailed discussions in smaller groups about the proposed list of sub-indicators. Dan Gustafson, Deputy Director General for Programmes, introduced the session by stressing the importance of having the input of such a group of experts.

Participants broke up into four different groups – economic, social, environment I (water/soil), and environment II (energy/land/GHG). Each group explored whether or not the sub-indicators included in the methodological note operationalize the themes they represent; whether or not they meet the criteria established at the beginning of the meeting; if any sub-indicators missing from the proposed list; and whether or not there are overlaps or correlations between any of the suggested sub-indicators.

In order to support and guide the choice of indicator themes, an approach similar to the Delphi Method was used to allow meeting participants to anonymously rate/rank the initial list of proposed indicator themes. At the midpoint of the afternoon session, all participants were provided with a form and asked to distribute 100 points among the proposed themes under each dimension as they felt appropriate. Participants were asked to circle the group (environmental, social, or economic) they participated in directly. In order to reduce potential bias, three versions of the form were created with the list of proposed themes randomized. Data were compiled immediately following the ranking exercise and then presented later that afternoon. The mean rating and corresponding 95% confidence interval were calculated for each dimension overall and stratified by group membership to better visualize rating distributions; boxplots were also presented (examples of the output are provided below).

At the end of the day each team presented the output of their discussions. The list of sub-indicators obtained at the end of Day 1 is presented in Annex 4.



Day 2

The objective of day 2 was to review and finalize the methodological sheets for the sub-indicators finalized during Session 1 and explore thresholds for each sub-indicator.

The day began with a brief presentation by Hans Vrolijk, from Wageningen Economic Research, who presented on Farm Level Indicators for New Topics in Policy Evaluation (FLINT). FLINT has developed a data infrastructure needed by the agro-food sector and policy makers to provide up-to-date information on farm level indicators on sustainability and other relevant new issues. FLINT has collected data, which fall into the three dimensions of economic, social and environmental, from different farm types from various European countries.

Many FLINT variables are already available through the Farm Accountancy Data Network (FADN), although some countries even collect more data than is required. The perceived importance of sustainability really varies across countries. The experience with FLINT has shown that the role of a trusted data collector is very important. www.flint-fp7.eu

Carl Obst then summarized some of the main lessons and conclusions from the prior day:

1. SDG process is large and significant. Many indicators are Tier III. There is a drive to develop methodology in the short term, targeting Tier II by end-2017.
2. The Poster session confirmed the multidimensional nature of sustainable agriculture and the growing importance of considering health outcomes.
3. We need to establish boundaries in defining the focus for measurement of agricultural sustainability.
4. Thresholds are difficult to assess, and it is important to develop a meaningful narrative. We need to distinguish thresholds from targets, between absolute and relative thresholds, and outcomes from practices. In order for thresholds to be considered for the construction of a global indicator like SDG 2.4.1, they should be scientifically sound, have political buy-in, or should already exist in international agreements.
5. Some metrics do not fit well into one dimension, for example resilience.
6. We need to recognize the value added of this process:
 - a. Relative success of the SDGs, great traction. Sustainable agriculture is important.
 - b. FAO is leading the development.
 - c. Direct involvement from national statisticians.

Session 2. Group work: Revision of methodological sheets for sub-indicators

Participants again split up into the groups from the preceding day. Each group was given templates with headings in order to develop/document the methodology for measurement of each sub-indicator. These included the aim and relevance of the indicator, the concepts that were being captured by it, the instrument for measurement, and suggested thresholds.

The results from the discussion are as follows:

For the **economic** group, the sub-indicators that were discussed included net farm income, which could be measured through farm cash receipts, income in-kind, cash receipts and operating expenses. This could be done with a three-year average and would exclude hobby farms. Another

indicator suggested was average labor productivity, measured as the value of production per labor of unit. The final proposed indicator was access to credit finance and insurance, measured either through farm survey or bank administrative records.

For the **social** group, the themes that were discussed included access to knowledge and education, access to land and security of tenure, gender equality (inter-household decision-making, decent work (wages), occupational/health safety, age profile of farm operators/workers and income diversification.

For the **environmental** groups, the list provided in the methodological document was considered as a solid starting point. Issues related to water, soil, energy, biodiversity were confirmed as important and needing to be reflected in the list of sub-indicators. Discussions took place on the need or not to have an indicator on land use change. It was felt that land use change per se could not be considered positive or negative, but that issues related to deforestation or biodiversity needed to be captured. An indicator related to field burning, a major issue in many countries, was added to the list.

It was generally agreed that for many environmental themes and associated sub-indicators, it would be challenging to collect the required data using farm surveys and, therefore, remote sensed data and other data at larger scales (e.g., watershed) would be considered. Suggested sources included Aquastat, IWMI indicators on environmental water requirements, and potentially remote sensing data to corroborate reported areas under irrigation and assess land-related variables like landscape heterogeneity.

At the conclusion of this session, a second round of the ranking exercise was conducted, using updated lists of potential themes.

Session 3. Group work: thresholds and results of the second ranking exercise

The objective of this session was to start establishing objective criteria – thresholds – for each of the proposed sub-indicators to determine what is sustainable and what is not.

As on Day 1, graphical results of the second ranking exercise were shared with participants in order to help determine where areas of apparent consensus did or did not exist with regard to initial as well as newly proposed themes.

Guidance on sub-indicator threshold development (Alasdair Cohen)

The choice of a specific threshold value (i.e., cutoff point) is, in most cases, necessarily based on reference or baseline values. For many types or distributions of underlying reference values (e.g. binary, ordinal, discrete, continuous), the established threshold can serve as a cutoff point between sustainable and unsustainable indicator values. Depending on the specific sub-indicator, the sustainability region may be above or below the threshold value. A classification of threshold types was presented in order to help participants determine which type of threshold might be most appropriate for the themes and sub-indicators under consideration in their groups.

Some effort should be made to identify, estimate, and represent the degree of uncertainty – which is unavoidable – around specified threshold values. Incorporating uncertainty into the sustainability thresholds can yield the added benefit of providing buffer zones that could help

ensure that farms on the borderline of sustainability would not inadvertently fall back into unsustainable states as a result of relatively minor shocks.

A variety of methods exist for determining thresholds based on the metrics under consideration and the availability and quality of the underlying data. Issues to evaluate when understanding which thresholds to use include balancing between ideal and available data, whether or not current or historical trends are being observed, heterogeneity over time and/or spatial scales.

Following the presentation, each of the groups deliberated around key questions, namely what possibilities exist for thresholds, whether or not a “universal value” exists, and what makes most sense in the context of different scenarios. At the end of the day, each group presented its final conclusions on sub-indicator selection and a summary of the conclusions from the threshold discussions.

The social group admitted that it was challenging defining thresholds for most of its proposed sub-indicators. The same was true for several environmental indicators. Some participants stressed that, for all sub-indicators at a farm level, what was important was to be able to show change over time.

For the environmental group (water and soil), the discussion centered on the sub-indicators. A number of questions were then discussed. For water use, what percentage is actually required to sustain ecosystems? For water quality, what are parameters and levels might indicate that agriculture was no longer sustainable? And for soil, what level of soil degradation or salinity might be too high such that agriculture was no longer possible?

For the other environmental group, discussion was focused on the thresholds. Burning has already been banned in many countries and could have an easy threshold. For GHG emissions and energy use efficiency, there is no clear standard and thresholds are not very meaningful. It was felt that ‘universal’ thresholds would be impossible to define, unless they are clearly related to internationally agreed standards.

For the economic group, several alternatives can be considered for net farm income with regards to thresholds instead of zero. For example net farm income above the national minimum wage or the national poverty line or per capita GDP for the farm to be sustainable. These will be applicable to all farms irrespective of the type, size, location and nature of operations.

For average labor productivity, one option to consider could be panel data collection from the same farms over time with sufficient disaggregation to capture the differences across typologies and classifications i.e. location, size, type of farm, type of activity and then use weighted average or median of the labor productivity for the sample farms for the country to arrive at a threshold against which farm average labor productivity will be benchmarked.

The question is, however, if a farm is reasonably profitable and has access to credit, whether engaging more labor means that it is unsustainable? Or is a farm more sustainable if it is using capital intensive production technologies (hiring less labor but high productivity)?

For access to Credit Finance and Insurance, a question in the survey with yes/no/why not answers could be used to classify the farm as resilient or otherwise. Other relevant questions include whether or not the farmer has the means to access the available credit, finance and /or insurance in case of shocks (not the case for normal business operations). If the answer is yes, then a farm could be considered resilient.

Day 3

The objective of Day 3 was to discuss, in plenary, the next steps in the process. This included guidance on the construction of the indicator, typologies and the governance structure around the indicator.

The day commenced with a brief presentation by Mr. Qingzhong Zhang from the Institute of Environment and Sustainable Development in Agriculture, China. A framework for sustainable agriculture has been assembled and presented to the Ministry of Agriculture. It has three dimensions (agricultural productivity, social and economic supporting capability, and ecological and environmental supporting capability), which cover eight themes and 11 indicators. These can be found in Annex 3.

Session 4: bringing it all together – constructing the indicator

Session 4 focused on three key questions: how can we combine the proposed sub-indicators, what farm typologies should be taken into account when developing the indicator, and what are the conclusions from the threshold discussion in order to move forward.

Discussions on the thresholds confirmed the difficulties in adopting thresholds for several sub-indicators. Participants insisted on the need to base thresholds on established, recognized and scientifically sound standards, whenever possible, and on focusing more on targets to be achieved, decided by countries. On the base of established and well recognized standards, FAO could propose thresholds for consideration by countries who could decide to adapt them to their specific conditions.

One of the main challenges of indicator 2.4.1 will be to ensure international comparability while offering countries an opportunity to establish their own targets and thresholds. It was suggested that a dual system, by which sub-indicators are measured, and only a few of them are used in compiling SDG indicator 2.4.1 could be a solution to satisfy both country level relevance and the needs for inter-country comparability and global reporting.

It was also recalled that the first goal of SDG indicator 2.4.1 is to offer countries an agreed methodology to monitor progress towards sustainable agriculture and therefore influence policy. In this sense, both the indicator itself and the sub-indicators (in the form of a dashboard) are important for policy makers: sub-indicators help understanding where the problems lie, both in geographical and in thematic terms, and act upon them.

In this sense, it was suggested that the team could identify a core set of sub-indicators that would be used for the construction of the indicator, and a longer list of sub-indicators that would be offered to countries for their consideration. This list could also include practice-based indicators, and would be used to measure progress in all relevant dimensions.

Given the potential complexity and cost implications of the construction of the indicator, and the need to propose cost-effective data collection processes, several participants suggested to consider testing the indicator with a few countries and assess the cost associated with its compilation.

Finally, it was stressed that there is a wide variety of related initiatives, albeit at varying scales and with different intents, but that collaboration and learning from these initiatives would be positive. The need to involve multiple stakeholders, including farmers, was also mentioned.

Session 5: The way forward

The purpose of Session 5 was to explore the possibility to establish some kind of governance structure for the development, and further refinement of SDG indicator 2.4.1, to discuss whether and how to continue exchanges beyond the meeting, and to discuss key findings and recommendations from the meeting.

The group supported the idea of a body that would help advise on the next steps in the process. This could include participants in the expert meeting and should be kept informal. It will also be crucial to involve countries, especially because they are the ones who will have to implement this. It is also important to involve as many voices as possible – as has been done at the expert meeting – in order to continue making it a participatory process. Involving members of the IAEG-SDG was also considered important, either through ‘soft’ or some kind of electronic consultation, so that they can contribute to the refinement of the methodology and be better informed at the time of submission for endorsement. Participants warned against the idea of creating a new governance mechanism for Indicator 2.4.1, stressing that it was preferable to use existing structures. Participants also stressed the need to develop SDG indicator 2.4.1 in a progressive way, offering an interim solution, and progressively moving towards higher quality data.

Each of the participants was then asked to write on cards their take-home messages and recommendations for follow-up actions. They are presented in Annex 5. Key points stressed by participants include the importance of capturing the diversity of issues with this indicator; and that it will be paramount to produce an indicator that each country can use to measure its own progress towards sustainable agriculture heterogeneous circumstances.

[For additional information, please visit <http://www.fao.org/sustainability/news/expert-meeting-sdg-indicator/en/>]

Annex 1: Agenda of the Expert Meeting

DAY 1: Monday, April 3 Listing themes and sub-indicators (Iraq Room, building B, second floor)	
9:30-11:00	Introduction and welcome to participants
9:30-9:35	FAO's sustainable agriculture programme (Clayton Camphanhola)
9:35-9:40	SDG Monitoring and the role of FAO (Pietro Gennari)
9:40-9:45	The Global Strategy and its role in supporting the SDGs agenda (Christophe Duhamel)
9:45-10:00	Meeting expectations
10:00-10:10	Developing indicator 2.4.1: The process thus far (Amy Heyman)
10:10-10:40	Presentation of the proposed draft methodology of indicator 2.4.1 (Carl Obst)
10:40-10:50	Definitions and terminologies (Asfandiyar Khan)
10:50-11:00	Introduction to the poster session
11:00-11:30	Coffee
11.30-13:00	Presentation of different approaches (poster session) and discussion in plenary
11:30-12:15	Poster session
12:15-13:00	Discussion in plenary
13:00-14:00	Lunch
14:00-15:30	Session 1 (Group work) The focus of the discussion will be a review of proposed sub-indicators for each theme: <ul style="list-style-type: none"> - Are these sub-indicators appropriately capturing the themes they represent? - Do they fit the criteria? - Is there a sub-indicator missing, or are there more appropriate choices? - Are there overlaps and/or synergies? - Ranking the sub-indicators
15:30-16:00	Coffee
16:00-17:00	Session 1 (cont.)
16:00-17:00	Discussion <ul style="list-style-type: none"> - Groups will be requested to summarize main points of discussion into two PPT slides - Result of ranking survey will be displayed and discussed

17:00-18:00	Presentation of results and summary of day 1
17:00-17:40	Each team will have five minutes to present, with five minute discussion
17:40-18:00	Summary
18:00-19:00	Reception (Aventino Room, eighth floor)
DAY 2: Tuesday, April 4 Measurement of sub-indicators and discussion on thresholds (Philippine Room, building C, second floor)	
8:45-9:00	Coffee
9:00-9:30	Getting started
9:00-9:20	Plenary: Country experience. How do countries address the challenge of measuring sustainable agriculture
9:20-9:30	Explanation of the activities for the day
9:30-11:00	Session 2: revision of methodological sheets for each sub-indicator
9:30-9:35	Group work. Groups will be the same as the prior day. Methodological sheet distributed to groups.
9:35-11:00	Group discussion: developing the methodology to measure each sub-indicator
11:00-11:30	Coffee
11:30-13:00	Session 2 (cont.)
11:30-12:00	Groups finalise the methodological sheets. Designate a presenter. Prepare presentation for discussion in plenary
12:00-13:00	Presentation of group results to plenary (10 minutes each, five minute discussion)
13:00-14:00	Lunch
14:00-15:30	Session 3: Thresholds
14:00-14:30	Presentation of threshold proposal (Alasdair Cohen)
14:30-15:30	Group work (same groups as in previous sessions): Discussion of thresholds for each sub-indicator.
15:30-16:00	Coffee
16:00-17:30	Session 3 (cont.)
16:00-17:30	Discussion: Each group presents thresholds. Feedback from other groups, finalisation of thresholds

17:30-18:00	Summary of day 2
17:30-17:50	Questions and discussion
17:50-18:00	Summary
DAY 3: Wednesday, April 5 Bringing it all together and the way forward (Iraq Room, building B, second floor)	
8:45-9:00	Coffee
9:00-9:30	Getting started
9:00-9:20	Plenary: Country experience. How do countries address the challenge of measuring sustainable agriculture
9:20-9:30	Explanation of the activities for the day
9:30-11:00	Session 4: Bringing it all together – constructing the indicator
9:30-11:00	Plenary discussion: <ul style="list-style-type: none"> - How do we combine sub-indicators - What typologies should we take into account - Should countries establish their own thresholds?
11:00-11:30	Coffee
11:30-13:00	Session 5: The way forward
11:30-12:15	Governance of SDG indicator 2.4.1 <ul style="list-style-type: none"> - Do we need a steering committee/advisory group? - What would be its task? - Composition of the group
12:15-12:30	- Summary of discussion and key decisions
12:30-12:45	Staying involved and moving forward: Next steps, including piloting
12:45-13:00	Closure

Annex 2: List of participants

Carlo Azzarri
Research Fellow
IFPRI
C.Azzarri@cgiar.org

Nobue Amanuma
Centre for Alleviation of Poverty Through
Sustainable Agriculture (UNESCAP)
amanuma@un.org

Simon Attwood
Team Leader-Ecological Intensification in
Farming Systems
Bioversity
s.attwood@cgiar.org

Barrie Bain
Senior Advisor on UN Affairs
International Fertilizer Industry Association
barrie.bain@outlook.com

Paul Boettcher
Animal Production Officer
Food and Agriculture Organization
Paul.boettcher@fao.org

Flavio Bolliger
Senior Statistician
Food and Agriculture Organization
Flavio.bolliger@fao.org

Lola Baimatova
Head of International Cooperation Dept
National Statistical Committee,
Kyrgyz Republic
baimatova71@mail.ru

Julie Bélanger
Technical Officer
Food and Agriculture Organization
Julie.belanger@fao.org

Nadia Bergamini
Researcher
Bioversity
n.bergamini@cgiar.org

Riccardo Biancalani
Project Coordinator
Food and Agriculture Organization
Riccardo.biancalani@fao.org

Alasdair Cohen
Consultant
University of California, Berkeley/Food and
Agriculture Organization
alasdaircohen@gmail.com

Clayton Campanhola
Strategic Programme Leader, SP2
Food and Agriculture Organization
Spl2@fao.org

Luigi Costanzo
Researcher on SDGs
Italian National Institute of Statistics
Italy (ISTAT)
costanzo@istat.it

Paulina Ceballos
Outreach Coordinator
International Agri-food Network (IAFN)
paulina@emergingag.com

Piero Conforti
Senior Statistician
Food and Agriculture Organization
Piero.conforti@fao.org

Silvia Cerilli
Agricultural Economist
Food and Agriculture Organization
Silvia.cerilli@fao.org

Chris Dickens
Head of Office, Southern Africa
WLE-IWMI
c.dickens@cgiar.org

Lorenzo De Simone
Geospatial Technical Officer
Food and Agriculture Organization
Lorenzo.DeSimone@fao.org

Siham Drissi
Programme Management Officer
UNEP
Siham.Drissi@unep.org

Neli Georgieva
Statistician
Food and Agriculture Organization
neli.georgieva@fao.org

Oliver Dubois
Senior Natural Resources Officer
Food and Agriculture Organization
Olivier.dubois@fao.org

Pietro Gennari
Chief Statistician
Food and Agriculture Organization
Chief-Statistician@fao.org

Jean-Marc Faurès
Senior Programme Officer, Sustainable
Agriculture
Food and Agriculture Organization
jeanmarc.faires@fao.org

Amy Heyman
Programme Officer, Sustainable Agriculture
Food and Agriculture Organization
amy.heyman@fao.org

Angela Ferruzza
Directorate for territorial and environmental
statistics
Italian National Institute of Statistics (ISTAT)
ferruzza@istat.it

Irene Hoffmann
Secretary CGRFA
Food and Agriculture Organization
Irene.hoffmann@fao.org

Nicoletta Forlano
Communications Advisor
Food and Agriculture Organization
Nicoletta.forlano@fao.org

Emily Janoch
Deputy Director
Research, Innovation, Evaluation and Learning
CARE International
ejanoch@care.org

Francois Fonteneau
AGRIS Programme Manager
Food and Agriculture Organization
francois.fonteneau@fao.org

Asfandiyar Khan
Economist, Global Strategy
Food and Agriculture Organization
arbab.khan@fao.org

Elise Golan
Director of Sustainable Development
Office of Chief Economist``
U.S. Department of Agriculture
egolan@oce.usda.gov

Eric Nongdo Kabore
Sectorial Statistics Department
Ministry of Agriculture and Food Security,
Burkina Faso
erickab1100@yahoo.fr

Kakoli Gosh
Coordinator
Food and Agriculture Organization
kakoli.gosh@fao.org

Adnan Muhammad, MM
Statistician
BPS-Statistics Indonesia
adnan@bps.go.id

Alexandre Meybeck
Agriculture and Environment Adviser
Food and Agriculture Organization
alexandre.meybeck@fao.org

Anne Mottet
Livestock Development Officer
Food and Agriculture Organization
anne.mottet@fao.org

Mark Miller
Director, International Programs Office, NASS
U.S. Department of Agriculture
Mark.R.Miller@nass.usda.gov

Connie Miller
Programme Adviser
Food and Agriculture Organization
constance.miller@fao.org

Donald Moore
Executive Director
Global Dairy Platform
donald.moore@globaldairyplatform.com

Emmanuel Menyha
Principal Statistician, Agriculture and
Environment Statistics
Uganda Bureau of Statistics
emenyha@gmail.com

Erdgin Mane
Policy Officer, Social Statistics and Gender
Food and Agriculture Organization
erdgin.mane@fao.org

Irini Maltsoglou
Economist
Food and Agriculture Organization
Irini.maltsoglou@fao.org

Soren Moller
Consultant
Food and Agriculture Organization
Soren.moller@fao.org

Dorian Navarro
Programme Adviser
Food and Agriculture Organization
doriankalamvrezos.navarro@fao.org

Carl Obst
Director
Institute for Development of Environmental-
Economic Accounting (IDEEA)
Carl.obst@ideeagroup.com

Octavio Oliveira
Coordinator of Agriculture Statistics
Instituto Brasileiro de Geografia e Estatística
(IBGE), Brazil
octavio.oliveira@ibge.gov.br

Livia Peiser
Technical Officer
Food and Agriculture Organization
livia.peiser@fao.org

Manas Puri
Sustainable Energy in Agriculture Expert
Food and Agriculture Organization
Manas.puri@fao.org

Tiziana Pirelli
Programme Adviser
Food and Agriculture Organization
Tiziana.pirelli@fao.org

Andrea Rossi
Natural Resources Officer
Food and Agriculture Organization
andrea.rossi@fao.org

Mike Robson
Senior Adviser
Food and Agriculture Organization
mike.robson@fao.org

Hans Vrolijk
Center of Economic Information
Wageningen Economic Research
Hans.vrolijk@wur.nl

Simona Sorrenti
Consultant
Food and Agriculture Organization
Simona.sorrenti@fao.org

Alberto Zezza
Senior Economist, LSMS
World Bank
azezza@worldbank.org

Nadia El-Hage Scialabba
Senior Natural Resources Officer
Food and Agriculture Organization
Nadia.scialabba@fao.org

Qingzhong Zhang
Institute of Environment and Sustainable
Development in Agriculture, China
zhangqingzhong@caas.cn/ecologyyouth@126.
com

Sun Tengjiao
National Bureau of Statistics
China
suntengjiao@stats.gov.cn

Annex 3: Poster session

Global Bioenergy Partnership (GBEP)

GBEP was founded on the idea that bioenergy can contribute to energy access and security, climate change mitigation, food security and sustainable development. The Partnership now focuses on three areas: sustainable development, climate change and food and energy security.

GBEP has produced a report entitled “The Global Bioenergy Partnership Sustainability Indicators for Bioenergy,” which presents 24 voluntary sustainability indicators for bioenergy developed to provide policy-makers and other stakeholders a set of analytical tools that can inform the development of national bioenergy policies and programs and monitor their impact. They fall into three broad pillars: environmental, social and economic.

International Agri-Food Network (IAFN)

IAFN was formed in 1996 during the World Food Summit as an informal coalition of international trade associations involved in the agri-food sector at the global level. The network facilitates liaison among the member organizations and engages international organizations in the agri-food chain at a global level.

The organization has developed a methodology for the calculation of SDG indicator 2.4.1. The composite indicator includes five dimensions: productivity (ton per ha or per animal unit); adaptation (average variability in farmer income over a five year period); ecosystem conservation (proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type); and land and soil quality (percentage of land that is degraded over total land area)

CARE International

CARE is a leading humanitarian organization fighting global poverty. CARE places special focus on working alongside poor girls and women because, equipped with the proper resources, they have the power to lift whole families and entire communities out of poverty. Last year CARE worked in 87 countries and reached 82 million people around the world. One of the organization’s key focus areas is food and nutrition security and climate change.

CARE’s goal is for 50 million people to have access to SuPER food systems—systems that are Sustainable, Productive, Equitable, and Resilient. In order to improve the work and be accountable to achieving this goal, the organization is designing measurement systems that provide 27 key indicators that all countries can use to monitor the impacts of their programming. These indicators are framed to sync with the SDGs and other key global conversations in order to improve programming, but also work with governments and other partners to help them meet their commitments to the SDGs.

Sustainability Assessment of Food and Agriculture Systems (SAFA)

The SAFA framework provides a common framework for sustainability that can be adapted to suit different users' needs.

The SAFA Guidelines provide a holistic and inclusive framework for assessing sustainability performance in the food and agriculture sector, including crop and livestock production, forestry and fisheries. At the request of SAFA practitioners, a series of other SAFA products have since been developed to support implementation of the Guidelines. To date, the SAFA series now includes the SAFA Indicators document and also the SAFA Tool. SAFA Indicators outlines the protocols for setting assessment thresholds for the default indicators provided. The SAFA Tool, is a software package that facilitates conducting a SAFA specifically at the supply chain level.

Agricultural Integrated Survey (AGRIS)

AGRIS is a modular 10-year survey programme that informs national policies and responds to SDG data requirements. It consists of a core module that mainly focuses on annual production statistics and 4 rotating modules with a different periodicity (Economy; Labour; Production Methods and Environment; Machinery, Equipment and Assets). The methodology is being developed by the Global Office of the Global Strategy.

China: Sustainable agriculture indicators proposed by ICAAS

Goal	Dimension	Theme	Indicator	Rank
Sustainable agriculture	Agricultural productivity	Quantity of ag. products	1 Grain self-sufficiency ratio	13
		Quality of ag. products	2 Per capita daily protein intake	11
		Yield fluctuation	3 Pass rate of ag. Products	8
	Social and economic supporting capability	Farm income	4 Grain losses rate due to disasters	8
		Rural-urban disparity	5 Increasing rate of per capita net farm income	10
		S&T input	6 Gini coefficient	10
	Ecological and Environmental supporting capability	Soil health	7 Contribution of S&T progress	10
			8 Increasing rate of SOM	7
		Water resource and aquatic environment	9 Soil contamination index	8
			10 Ratio of water consumption for ag. to available water resources	7
			11 Percentage of waste water irrigation	8

Annex 4: Reflections from participants

Participants were asked to write their main take-home messages, and recommendations to FAO for the follow-up of the workshop. These notes are presented verbatim in this Annex.

Take home messages

- Complexity of measuring sustainability is very real, especially integrating the social dimension.
- Some countries defined a monitoring for SDG 2.4.1 like China, even if environmental dimension is not covered yet.
- The three dimensions on which sustainability sets is important because often we relate sustainability only to environment.
- Difficulties to compute the indicator.
- Types of thresholds which can be defined by the country.
- How to incorporate SA issues in questionnaire design in agricultural statistics surveys.
- Sustainability is a latent and multidimensional concept. It is not observable directly, thus the more information indicators you have about it the more precise will be its measurement.
- I am not sure about excluding a-priori composite indicators. It is a way to go in order to reduce dimensions in a solid way, particularly in the social dimension, where the latent modelling was developed initially.
- Difficulty in ensuring that the indicators are both measurable and feasible, and remain true to the definition of sustainable agriculture and the main themes identified.
- The impression that a good starting point has been established as a very wide range of topics/issues have been brought to discussion, and a variety of points of view have been represented.
- Impressive progress on indicator and sub-indicators.
- Precious job to implement very essential and important indicator. It is important for the opportunity to work on the sustainability of agriculture.
- The SDG indicators are important and urgent to be proposed. We made great progress in this meeting on the indicators.
- It is a big challenge to measure and adopt and at the same time prepare data availability.
- The methodology to measure the indicator will be built in country to accommodate the results of the meeting.
- The data of some sub-indicators has been provided and some other still need to be provided.
- The results of the workshop will be very useful to countries.
- Definition of sustainable agriculture is still an issue, maybe the biggest one in this process.
- Considering all constraints, indicator 2.4.1. can only be sub-optimal but it is a start. Good luck!
- In 2020 true-cost accounting of agriculture may be ready and a useful indicator.
- The participatory process by FAO was great, very organized, and time management was excellent.
- Considerable progress in the scope and extent of the very notion of sustainable agriculture in particular on biodiversity and social issues.
- A broad agreement of the need for all countries to monitor all those dimensions and make progress on all of them.
- A fully comprehensive framework that is also practically feasible is not possible. However, already working across the three dimensions of sustainability, focusing on trade-off and synergies

is extremely innovative for an agriculture statistics perspective – congratulations for the high ambition.

Recommendations to FAO

- Answering some methodological questions will help clarifying final choice of indicators (eg. Thresholds or continuous improvement → some indicators cannot have a threshold in an objective way, particularly in the social sphere)
- The final choice of indicators must consider the interactions between spheres/dimensions (that are missed when group work focuses on one dimension). For example if land productivity is removed from economic dimension perhaps there is an increased argument to re-introduce land use change.
- Clarify what are the key objectives (support national-level monitoring; drive a conversation on sustainable agriculture at country level; report on progress at global level). This has implications for methodological choice. For instance, is international comparability absolutely necessary? Can we give more flexibility to countries in implementation?
- There is a need for some kind of subsidiarity for countries, at least on thresholds and targets.
- It is important to assess and monitor all issues even if some of them are more difficult with less achieved tools and less data, particularly in some areas.
- One possibility to go forward without leaving behind any issue or country would be to rephrase the overall indicator in: “Percentage of land where all sub-indicators are regularly monitored and publicized, priorities are identified and addressed through a time-bound management plan in order to achieve progress at all times” with precisely defined sub-indicators, including methodology and data sources.
- In many cases there exist methodologies and sources of data easier and more cost-effective than farm surveys. It would be very useful to look into existing official statistics systems and what is already gathered, how and what it requires. There may also be other means like remote sensing but that could raise some confidentiality/sovereignty issues.
- Keep the list of indicators short so as to contain the costs.
- Ensure country ownership.
- Country self-assessment against oneself is very important and reflects context specificity.
- Seamless continuation of the process would be important so that knowledge and reasons behind suggestions don't get lost in transition from one stage to the next.
- Resilience is an important issue that cuts across the three sustainability dimensions. It should come out more strongly in the final list of sub-indicators.
- It would be good to involve farmers next time.
- Harmonize concept definitions for all the countries. For example, labor unit for a farm will be considered from 15 year old at least.
- It would be good to get a revised methodology concept note and recommendations before October 2017.
- We should define a synthetic indicator for each dimension.
- Let each country adapt the threshold to its context according to its priorities because insecurity threats overcome national development policies
- Consider aspects of related sectors that impact agriculture.
- We need high disaggregation of farm types, size, location, types of activities to establish national thresholds by typologies.

- Engage experts on specific themes.
- A pragmatic approach can be used with the household survey data to define the thresholds for the quantitative sub-indicators. That will avoid sample bias because size is often feeble.
- Simplify the indicator approach.
- Many indicators are easily measurable in Europe but they are not feasible in most of the developing countries.
- Consider to involve more people/experts from developing countries in order to know their point of view or the feasibility of each sub-indicator if you take into account the context.
- I think we should measure the progress made in conserving the environment by taking into account the local context. Farmers care about soil quality and biodiversity if they own the land they cultivate. Land tenure is a key factor.
- Further help NSOs in the incorporation of issues of SA in their surveys.
- Be aware of the trade-off between measurability, policy relevance and the aspirational quality that the indicator needs to have, and decide where we want to be on that spectrum.
- Use AGRIS as a vehicle to pilot and implement the SDG 2.4.1 indicator at country level.
- Geo-referenced information could be used to link farm-level data with regional or higher level data.
- Taking more into account the point of view of the statistical producers (not the ‘statisticians’) so as to not under-evaluate some key issues such as the feasibility of the proposed indicator. There is clearly a trade-off between complexity/accuracy and feasibility/effectiveness (mostly in terms of communication), but in this case I would express myself in favour of the latter, because the entire SDG process is not aimed at improving the representation of phenomena but at changing national policies (where necessary).
- It is very important to insist on on-going efforts and to have a proposal to submit to go on with the process: feasibility and acceptability; less is better than nothing; It could be better to have a proposal to be changed than no proposal.
- Be realistic on what data can be collected and invest in data collection and methodological development.
- The indicator should be broader and the benchmarks should be left to the countries to decide.
- It is important to acknowledge that sustainability is context dependent, and therefore a universal standard for sustainability should be discouraged.
- As a follow-up to this meeting I suggest that we have follow-up exercises to narrow down the indicators and how to measure them (in addition to what needs to be measured).
- Experts who know agriculture and farmers, as well as policies, need to join the advisory group.
- It is important to derive the fixed methodology to measure all of the sub-indicators.
- Inform participants on the progress on the finalisation of this indicator so progress can be viewed.
- Biodiversity: think landscape scale as well as farm scale. Account for both wild biodiversity (and the ecosystem services they provide) and agriculture biodiversity (eg. on-farm crop diversity). Dovetail with SDG 14 and 15 in this regard.
- Consider point information at farm level as well as regional/national data from remote sensing with focus on: biodiversity; water balance; soil losses; LULC change.
- Thresholds should be ‘do not harm’ (e.g. environmental degradation or people’s right and health).
- Aspire for improvement-based indicators to move agriculture towards more ‘common good’ (e.g. restoration, mitigation).

Sustainable Development Indicator Target 2.4

Proposed by FAO, 14 December 2015

Target 2.4	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
Indicator 2.4.1	Percentage of agricultural area under productive and sustainable agriculture
Definition and method of computation	<p>The indicator is defined by the following formula:</p> $\text{Percent of land under productive and sustainable agriculture} = \frac{\text{Area under productive and sustainable agriculture}}{\text{Agricultural area}}$ <p>Where</p> $\text{Agricultural area} = \text{arable land} + \text{permanent crops} + \text{permanent meadows and pastures}$ <p>The denominator, agricultural area, is a well-known and established indicator that are collected by statistical bodies in countries and compiled internationally via a questionnaire by FAO. These data are available in FAO's database FAOSTAT.</p> <p>The numerator captures the three dimensions of sustainable production: environmental, economic and social. The measurement instrument – farm surveys – will give countries the flexibility to identify issues related to sustainability that are most relevant to priorities/challenges within these three dimensions.</p> <p>Land under productive and sustainable agriculture will be those farms that satisfy indicators selected across all three dimensions.</p>
Rationale and interpretation	<p>There has been considerable discussion over the past thirty years on how to define “sustainable agriculture.” Sustainability was often understood mainly in its environmental dimension. Yet, it is well established that sustainability needs to be considered in terms of its social, environmental and economic dimensions. The indicator has been operationalized in order to capture its multidimensional nature.</p> <p>Challenges to sustainable agriculture vary within and across countries, and by region and are affected by socio-economic and bio-physical conditions. By addressing sustainability across its three dimensions, countries can select those metrics within their measurement instrument that best capture the priorities most relevant to them. A further metric will be added to capture the resilience dimension of the target.</p> <p>A set of possible metrics for each dimension will be established in order to ensure relevance across the whole range of possible socio-economic and bio-physical conditions. Farm surveys will be designed on the basis of a limited set of these measurements, established at national level in order to cover the most relevant aspects of these dimensions of sustainability. Each surveyed farm will be assessed against targets for each of these measurements, decided at national level. The area of farm that satisfy the targets in all dimensions would be considered as sustainable; otherwise no. Progress would be measured against a benchmark, which would show trends over time.</p>
Sources and data collection	Data on sustainable production will most likely be collected through agricultural surveys or agricultural modules in integrated household surveys organized by the national statistical agencies, with support from FAO or other international agencies to ensure methodological rigor and harmonization. It is expected that these measurements will be integrated and complemented by earth observation technologies, either by or under the overall supervision of national statistical agencies.

Target 2.4	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
Indicator 2.4.1	Percentage of agricultural area under productive and sustainable agriculture
Disaggregation	As long as farm or household level data are available, the indicator can be computed for specific population groups and geographical areas. The level of disaggregation depends on the sample design and sample size in each specific country, but, in general, data can be tabulated by geographical area, size of the farm, gender and age of the enterprise manager.
Comments and limitations	Data from farm surveys can be supplemented with information from other sources, including geospatial data/remote sensing or other techniques to capture environmental data. Data collection or data sharing may be difficult in some countries.
Data for global and regional monitoring	Data for global and regional monitoring will be obtained from aggregation of national data. They can be complemented or enhanced by the use of well selected earth observation data.
Supplementary information	<p>The methodological development of the indicator could benefit from the support from the Global Strategy to improve agricultural and rural statistics, a program aiming at improving countries' capacities to produce agricultural and rural statistics in support to more effective food security and agricultural and rural development policies. As part of this program, FAO, in collaboration with IFAD and the World Bank, are working towards the establishment of a harmonized and cost-effective program of Agricultural and Rural Integrated Surveys (AGRIS) that could form the basis for the collection of data on indicator 2.4. Through this program, methodological guidelines on how to conduct enterprise surveys in agriculture will be developed and provided to countries, together with technical support in the implementation of the farm surveys.</p> <p>—</p> <p>The proposed indicator for 2.4 is directly linked – and may either draw from or provide information to – other proposed SDG targets:</p> <ul style="list-style-type: none"> • 2.3 (agricultural productivity). The link between SDG 2.3 and 2.4 is especially strong. Data for these two indicators can be jointly collected through the same integrated survey. • 6.3 (Improving water quality) • 6.4 (water use efficiency) • 12.2 (efficient use of natural resources) • 15.2 (sustainable management of forests) • 15.3 (land degradation)
References	<p>Land use data: http://faostat3.fao.org/download/R/RL/E</p> <p>Sustainable agriculture:</p> <ul style="list-style-type: none"> - http://www.fao.org/sustainability/en/ - Building a Common Vision for Sustainable Food and Agriculture <p>Global Strategy to Improve Agricultural and Rural Statistics: http://www.fao.org/3/a-i3940e.pdf</p>