

Role of international, regional and country organizations in adapting to statistical standards and regional differences: The case of food and agriculture statistics

Valerie Bizier^{a,*}, Pietro Gennari^b and Dorian Kalamvrezos Navarro^c

^aSenior Statistician, FAO, Rome, Italy

^bChief Statistician, FAO, Rome, Italy

^cStatistician, FAO, Rome, Italy

Abstract. The adoption of international standards is essential to producing internationally comparable official statistics. However, as the particular case of the adoption of SDG indicators demonstrates, this is by no means a linear process. According to FAO's SDG data gap assessment conducted in 2019 and other statistical capacity assessment reports (e.g., World Bank, AfDB...), financial, professional and technological capacities of national statistical agencies vary greatly between countries and regions, as does the level of political support and commitment to statistics. These differences call for more targeted interventions by international institutions to support the uptake of statistical standards. To face this challenge, FAO is increasingly building the capacity of its regional and country offices to better mainstream food and agricultural statistics in regional and national cooperation strategies and activities, while also stepping up its resource mobilization efforts. Regional roadmaps are currently being rolled out to support countries in adopting food- and agriculture-related SDG indicators and other statistical standards, taking into consideration regional particularities, the impact of UN reform, action plans developed by UN Regional Commissions and other relevant regional partnership opportunities. This paper will highlight some of the key regional differences in countries' capacity to adapt to statistical standards, describe FAO's regional targeted interventions in the context of food and agricultural statistics, and discuss the remaining main challenges.

Keywords: Food and agriculture statistics, capacity development, regional and national strategies for the development of statistics, international statistical standards

1. Introduction

The adoption of international standards is essential for producing internationally comparable official statistics. Since 2015, the 2030 Agenda and the associated Global SDG Indicator Framework, endorsed by the UN Statistical Commission [1] in 2016 and by the UN General Assembly in 2017 [2], has created a wide range of new data demands, including 232 SDG indicators to be

produced according to internationally agreed upon standard methods so as to ensure coherent national, regional and global SDG monitoring.

The global SDG indicator framework is the foundation of the 2030 Agenda's follow-up and review process [3]. It anchors the Agenda's in-built mutual accountability mechanism that propels countries to implement transformative changes, even in the presence of a nominally "voluntary and country-led" Agenda that is not a legally binding treaty. With its 232 global SDG indicators consisting of an internationally approved methodology, the SDG indicator framework allows monitoring progress towards the 169 SDG targets

*Corresponding author: Valerie Bizier, Senior Statistician, FAO, Rome, Italy. E-mail: valerie.bizier@fao.org.

in a comparable way across countries, providing a solid basis for mutual accountability. SDG indicators are used to monitoring progress at country, regional and global level through publications and reports produced on a regular basis, such as the annual global SDG Progress Report, thematic reports prepared by regional and international organizations, or Voluntary National Reviews (VNRs). Such global and national reports, in turn, inform the annual High-Level Political Forum (HLPF), which is responsible for the follow-up and review of the 2030 Agenda.

The ability of the SDG indicator framework to provide comparable information, and therefore underpin the 2030's Agenda elaborate mutual accountability edifice, is evidently weakened when the required information is lacking. Likewise, in the absence of SDG data, it becomes manifestly impossible to design evidence-based policies, strategies and investment programmes able to drive the kind of transformative changes the 2030 Agenda calls for. To be sure, the SDG indicator framework is a monumental undertaking, especially if compared to its predecessor, the Millennium Development Goals (MDG) indicator framework. There are almost four times as many SDG indicators as there were MDG indicators, and if that were not enough, some new SDG indicators are multi-component indicators, effectively consisting of a cluster of underlying indicators.

The adoption and reporting by countries of these indicators according to international standards is by no means a linear process. As seen in a number of recent reports and studies [4], there is a great variation among countries and regions in terms of statistics governance; financial, professional and technological capacities of national statistical systems; as well as political support and commitment for statistical development. The adoption of SDG-related standards is even more challenging than other statistical standards as many SDG indicators are completely new and have not been the result of a typical long-term methodological development process. Moreover, the 2030 Agenda rests on the overarching principle of country ownership and the voluntary adoption of the global indicator framework by countries, which can clash with the key premise for producing regional and global aggregates, i.e. international comparability.

These differences, and the limited resources available for statistics development, shape and often prevent the uptake of the newly defined SDG-related statistical standards, despite the urgent need to address SDG data gaps to successfully implement the 2030 Agenda. This calls for a strong and coordinated global advocacy effort

as well as more timely and targeted interventions by international institutions at all levels to support countries in responding to the data requirements of the 2030 Agenda.

This paper will examine the level of uptake by countries of the SDG indicators under FAO custodianship and discuss the factors influencing the reporting of these indicators. This analysis, presented in Sections 2 and 3, will also highlight the differences between regions in terms of SDG indicators data availability, countries' capacities and available data sources, and the status of funding for statistical capacity development.

Moreover, Section 4 of this paper will describe FAO's strategy to accelerate the production and use of food and agriculture-related global SDG indicators by national statistical systems, using the internationally agreed methodology and standards. In this section, the authors will present FAO's overall approach to capacity development, which takes into consideration region-specific constraints and needs through a set of regional roadmaps that better position FAO and UN development agencies to accelerate country-level support on food and agriculture statistics.

2. Availability of food and agriculture-related SDG indicators

In the case of SDG indicators, a proxy measure [5] for the general uptake of the SDG statistical standards by national statistical agencies is the reporting rate (or country coverage) by indicator [6]. As shown in Table 1, these reporting rates vary greatly by SDG indicators (see Annex 1 for detailed indicator descriptions) and regions [7].

The overall reporting rate for SDG indicators under FAO custodianship, all regions considered, was 52.6% [8] at the end of 2021. Despite a steady increase in recent years (from 42% in 2019), the reporting rate remains unsatisfactory, on average, and very low for some indicators, which prevents FAO from producing regional and global aggregates for global and regional monitoring. In particular, SDG indicators 2.3.1, 2.3.2, 2.4.1, 5.a.1, 5.a.2, 12.3.1 and 14.4.1 have no or very few country data reported in the global SDG database. These data gaps hamper decision-making and the monitoring of progress on agri-food system issues, such as equal access to land and markets, sustainable agriculture production and food losses, which require urgent policy transformations for the achievement of the SDG targets.

Table 1
Reporting rates of the SDG indicators under FAO custodianship, by Region [9], 2017–2021

| SDG indicators under FAO custodianship | World | Europe, Canada, USA, Australia and New Zealand | Sub-Saharan Africa | Western and Central Asia | Latin America and the Caribbean | Near East and North Africa | Other Asia and the Pacific |
|--|--------|--|--------------------|--------------------------|---------------------------------|----------------------------|----------------------------|
| 2.1.1 | 82.1% | 89.4% | 83.0% | 90.9% | 84.8% | 77.8% | 70.0% |
| 2.1.2 | 61.7% | 89.4% | 66.0% | 63.6% | 36.4% | 44.4% | 52.5% |
| 2.3.1 | 1.5% | 2.1% | 4.3% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2.3.2 | 2.6% | 2.1% | 4.3% | 9.1% | 3.0% | 0.0% | 0.0% |
| 2.4.1 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 2.5.1.a | 50.5% | 85.1% | 36.2% | 54.5% | 42.4% | 44.4% | 35.0% |
| 2.5.1.b | 48.0% | 63.8% | 59.6% | 36.4% | 36.4% | 38.9% | 32.5% |
| 2.5.2 | 41.8% | 76.6% | 29.8% | 18.2% | 36.4% | 33.3% | 30.0% |
| 2.a.1 | 77.0% | 83.0% | 83.0% | 81.8% | 72.7% | 72.2% | 67.5% |
| 2.c.1 | 89.3% | 93.6% | 91.5% | 81.8% | 90.9% | 88.9% | 82.5% |
| 5.a.1 | 11.2% | 2.1% | 38.3% | 0.0% | 3.0% | 0.0% | 5.0% |
| 5.a.2 | 18.4% | 21.3% | 21.3% | 18.2% | 27.3% | 11.1% | 7.5% |
| 6.4.1 | 84.7% | 89.4% | 95.7% | 100.0% | 81.8% | 100.0% | 57.5% |
| 6.4.2 | 89.8% | 89.4% | 97.9% | 100.0% | 97.0% | 100.0% | 67.5% |
| 12.3.1 | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 14.4.1 | 6.6% | 17.0% | 2.1% | 0.0% | 3.0% | 0.0% | 7.5% |
| 14.6.1 | 61.2% | 80.9% | 46.8% | 45.5% | 72.7% | 33.3% | 62.5% |
| 14.7.1 | 54.1% | 61.7% | 46.8% | 18.2% | 72.7% | 33.3% | 57.5% |
| 14.b.1 | 71.4% | 80.9% | 63.8% | 72.7% | 84.8% | 38.9% | 72.5% |
| 15.1.1 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| 15.2.1 | 69.2% | 71.5% | 75.7% | 70.9% | 67.3% | 62.2% | 63.0% |
| 15.4.2 | 69.4% | 66.0% | 80.9% | 100.0% | 57.6% | 72.2% | 60.0% |
| Overall | 52.6% | 59.7% | 55.0% | 51.7% | 51.5% | 46.2% | 45.5% |

Note: Reporting rates below 50% have been highlighted to show the most severe data gaps for each region (Source: SDG Global Database, December 2021).

The universality of the 2030 Agenda translates into the notion that the SDG indicators are expected to be produced by both developed and developing countries – in contrast to the predecessor MDG framework that effectively only applied to developing countries. This is by no means a trivial point considering that for many indicators, developed countries are only marginally ahead of developing countries in terms of country coverage. Moreover, there are certain indicators in which developed countries are either at the same level or indeed lagging behind developing countries, which is the case for SDG indicators 2.3.1, 2.3.2 and 5.a.1, due to the fact that country estimates have primarily been generated based on existing internationally-led surveys, such as the LSMS-ISA and DHS. By contrast, for SDG indicators 2.4.1 (sustainable agriculture), and 12.3.1 (food losses), whose recommended principal source are farm surveys, neither developed nor developing countries have yet put in place the necessary data collection mechanisms to produce them under the SDG indicator framework.

In general, however, European countries, Canada, the US, Australia and New Zealand have the highest overall reporting rate (59.7%), while countries in the “Other Asia and the Pacific” and the Near East and North Africa (NENA) regions have the lowest over-

all reporting rates, respectively 45.5% and 46.2%. For some indicators, reporting level are particularly low only in few regions. For example, the current level of reporting on the prevalence of moderate and severe food insecurity (SDG indicator 2.1.2) is less than 50% in Latin America and the Caribbean (LAC) and the NENA regions, while it is over 60% in most other regions. Significant regional differences also occur in the reporting level of SDG indicators 2.5.1 and 2.5.2 (genetic resources for food and agriculture), 14.6.1 (IUU fishing), 14.7.1 (sustainable fisheries) and 14.b.1 (small-scale fisheries).

3. Factors influencing the uptake of food- and agricultural-related SDG indicators and regional differences

In this section, the various structural factors influencing SDG reporting rates and some of the differences observed between regions are discussed. The key explanatory factors considered include: the general maturity of the SDG standards and the status of country ownership on their adoption; the regular implementation of data collection processes (e.g. agricultural surveys/censuses) that can be adapted to the collection of the required data

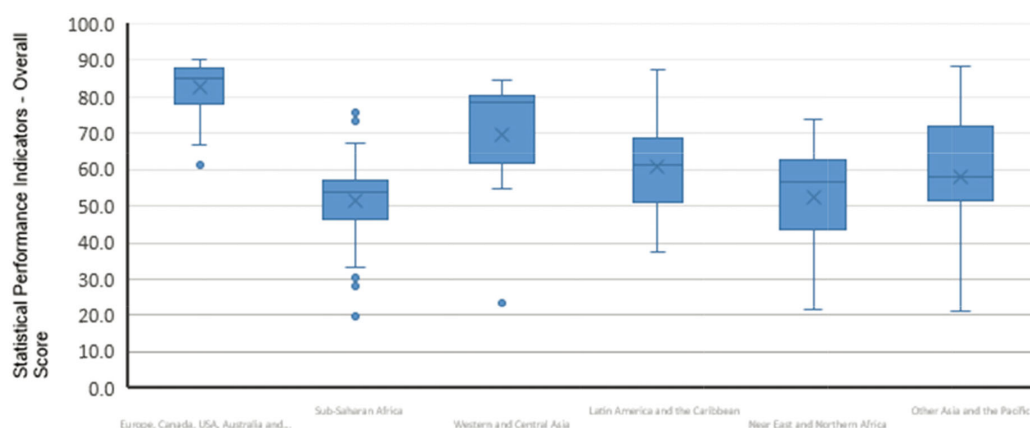


Fig. 1. Distribution of country-level overall statistical performance indicator scores, 2019, per region. Note: For each region, the box and whisker plot the average score (x marks), the median, 25th and 75th percentiles and the range, data points represent outliers (scores that are beyond the quartiles by one and a half the interquartile range). (Source: World Bank, Statistical Performance Indicators Database, 2021).

needed for the compilation of the SDG indicators; the overall statistical capacity of national statistical agencies required to produce the indicators; the availability of sufficient funding resources for official statistics, and the coordination of UN development agencies. While COVID-19 has also had a direct impact on national statistical agencies over the past two years, an assessment of the level of this impact is beyond the scope of this paper given that the pandemic cannot (yet) be considered a structural, long-term factor.

Before focusing on the specific factors influencing food- and agriculture-related indicators, a discussion of the overall performance of national statistical systems is carried out to set the stage for the domain-specific analysis. The overall scores derived from the 2021 Statistical Performance Indicators [10] show significant differences in statistical performance of regions and countries within them.

As shown in Fig. 1, the overall SPI score ranges between 20 (Somalia) and 90 (Norway). European countries, Canada, USA, Australian and New Zealand show the highest performance and have a lower intra-region score variation than countries in other regions, while Sub-Saharan Africa and NENA countries score more poorly than the other regions. The World Bank analysis [11] shows that SPI overall scores are lower in low and lower-middle income-level countries and fragile and conflict-affected economies, and are strongly correlated to GDP per capita, government effectiveness, and the human capital index. Although these findings will not be re-examined in this paper when analyzing the various factors influencing the uptakes of the food- and agriculture-relevant indicators, it is clear that they certainly play a key role in explaining some of the regional differences described in this context.

3.1. Maturity of SDG standards and country ownership

A substantial number of SDG indicators are relatively new constructs, conceived and designed for the specific purpose of monitoring the SDGs, often extending into new statistical domains not traditionally covered by official statistics, and therefore necessitating the involvement of a much wider spectrum of data providers – even entities that may not have hitherto been considered part of the National Statistical System (NSS). For these reasons, while the methods and standards for compiling all SDG indicators were finally officially adopted by the UN Statistical Commission in March 2020, annual refinements and an additional Comprehensive Review of the Global Indicator Framework is foreseen until 2030, acknowledging that the process of developing steady international standards is not completed yet.

Bearing these considerations in mind, it is not surprising that the SDG indicator framework continues to be afflicted by severe data gaps. As of February 4th, 2022, about two fifths (91 out of 232) of the global SDG indicators remain in the Tier II category [12], meaning that less than 50 percent of countries are able to produce them. In the case of the 21 food and agriculture-related SDG indicators under FAO custodianship, the ratio between Tier II and Tier I is slightly better than the overall ratio, with only one third of the indicators (7 out of 21) remaining in the Tier II category. By definition, it is usually not possible to produce regional and global aggregates for these indicators, and therefore not possible to monitor regional and global progress toward the associated SDG target. Furthermore, even though 50 percent country coverage is the cut-off point

distinguishing Tier II from Tier I indicators, in practice, a Tier II status sometimes means that only a handful or even no countries whatsoever are yet producing that particular indicator.

Concerning the principle of country ownership, the SDG indicator framework itself is the product of a country-led process under the UN Statistical Commission and specifically its subsidiary body the “Interagency and Expert Group on SDG indicators” (or IAEG-SDG). Contrary to its predecessor group, the IAEG-MDG, which consisted only of international organizations, the IAEG-SDG comprises 28 member countries, whereas international organizations and other entities participate formally only in an observer capacity [13], despite the fact that over 40 international organizations have also been assigned a custodial responsibilities over one or more SDG indicators. This paradoxical situation has given rise to a long debate on the precise scope of the term “country ownership” in this context, and the boundary of responsibilities between countries, international organizations, and other regional or national actors, which has only partially been addressed by the 2018 *IAEG-SDG Guidelines on Data Flows and Global Reporting*.

A key reason that this debate continues to flare up from time to time, despite the Guidelines’ effort to delimit the respective responsibilities of countries and custodian international agencies, is the fact that in practice, many countries continue to contest their own reporting responsibilities toward international organizations, while also questioning the role of custodian agencies in collecting data from countries, providing quality control, and ensuring compliance with established international methodologies, standards and classifications. While only a small minority of countries have explicitly positioned themselves as “persistent objectors” against the need to report SDG indicators via custodian agencies, many more countries appear to misapply the principle of country ownership in less overt ways, including by contesting the applicability of certain indicators to their own context without solid justification; refusing to validate estimates generated by custodian agencies; substituting global SDG indicators with different national indicators that are not comparable; or withholding underlying data, thus making it impossible for a custodian agency to provide quality assurance.

3.2. Regular implementation of relevant data collection processes

Several of the FAO-relevant SDG indicators included in the Global SDG Indicator framework rely on vari-

ables collected through existing national surveys or censuses. For instance, the compilation of SDG indicator 2.1.1 on the prevalence of undernourishment relies on data to be collected mainly through individual food consumption or household income and expenditure surveys. SDG indicators 2.1.2 and 5.a.1 are compiled using data collected through short questionnaire modules included in relevant household surveys. Data necessary for the production of SDG indicators 2.3.1, 2.3.2, 2.4.1 and 12.3.1a should preferably be collected through agricultural surveys or censuses. On the one hand, the strategy of using existing data collection mechanisms to collect SDG data facilitates the uptake of SDG standards, given that no additional, ad-hoc surveys are needed (which would certainly also require more resources). On the other hand, the capacities of countries to produce the indicators is very much dependent on the regular implementation of such surveys or censuses in the first place.

Indeed, fundamental data collection processes such as censuses and surveys are not regularly conducted in many countries, especially those with lower income, more fragile governance institutions, small population size and lower commitment to statistics development. A case in point is the Census of Agriculture, which FAO recommends should be conducted by countries at least once every ten years, in order to collect up-to-date structural data on the agriculture sector, at a disaggregated geographical level. The Census of Agriculture is not only an essential source of information for national governments and decision-makers, but is also key to support high quality agriculture statistics as it provides necessary information to build a list frame for agriculture sample surveys as well as to reconcile and calibrate agriculture statistics produced from other sources. In the context of the SDGs, it is a good data source to produce farm-based SDG indicators, as mentioned above (though not ideal due to its low frequency), but also support the disaggregation of these indicators by relevant variables.

FAO, through its World Programme for the Census of Agriculture (WCA) 2020, provides methodological guidance and technical support to countries for the conduct of agricultural censuses, and monitors their implementation at national level. For the WCA 2020 round, which covers the period between 2016 and 2025, Fig. 2 shows that up to now, a majority of countries worldwide (57.6%) have not conducted their census, either because it is still in the planning phase (32.1%) or because the country has not yet decided when the census would be conducted (25.5%). Uptake of agriculture census

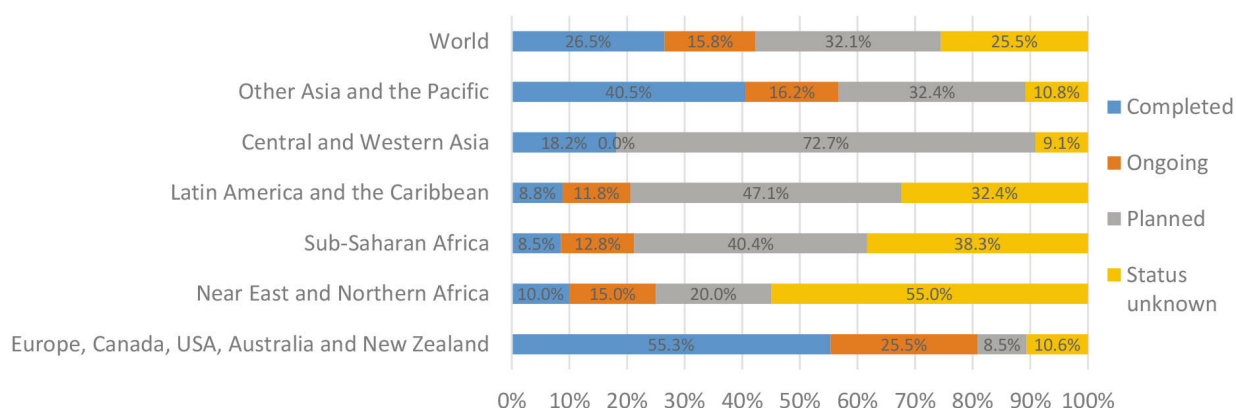


Fig. 2. Percentage of countries according to their implementation status of the World Census of Agriculture 2020 Round (i.e. Agricultural Censuses conducted between 2016 and 2025), per implementation status and region (Source: FAO, Internal WCA monitoring, 7 January 2022).

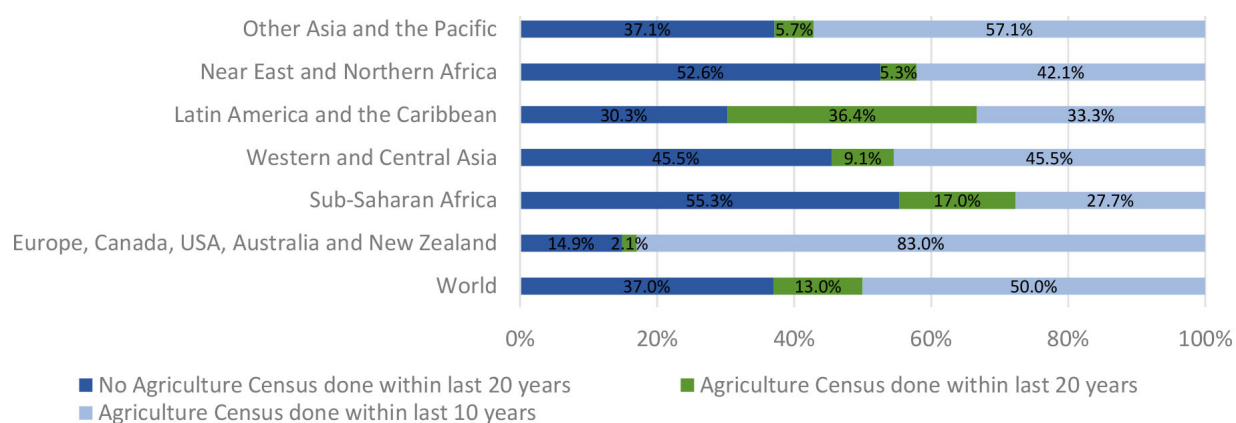


Fig. 3. Percentage of countries according to the frequency of their agriculture census in the last 20 years (period covering 2001–2020), per frequency and region (Source: World Bank, Statistical Performance Indicators Database, 2021).

also varies between regions. While a large majority of European countries, Canada, USA, Australia and New Zealand have conducted or in the process of conducting their agricultural census (80.8%), only 56.7% of countries in the “Other Asia and the Pacific” region are in the same situation, whereas only a meager proportion of around 20–25% of countries in the other regions have carried out this fundamental pillar of every national agricultural statistical programme.

While the COVID-19 pandemic has had an impact on census-related data collection activities [14], it does not constitute the main factor explaining why so many countries have not yet conducted an agriculture census in the last decade. As shown in Fig. 3, more than 37% of countries worldwide have not done so in the last 20 years (with even higher rates for Other Asia and the Pacific, NENA and Sub-Saharan Africa regions, respectively at 45.5%, 52.6% and 55.3%).

Similarly, based on an SDG gap assessment done by FAO in 2019 [15], soon before the pandemic erupted, agriculture surveys are also not regularly conducted by many countries (32.5% of the 111 countries that participated in the study – see Fig. 4). While data collection activities on farms and their agriculture activities are often taking place annually or multiple times a year in Europe, Canada, USA, Australia, New Zealand and countries from Western and Central Asia, agriculture surveys do not constitute a regularly implemented data source in many countries of the LAC, Sub-Saharan and NENA regions.

Household surveys, which constitute as good vehicle to collect relevant data items for food- and agriculture-related SDG indicators, are conducted more frequently than agricultural surveys, but still not with the ideal annual periodicity in many countries, as shown in Figs 5 and 6. Household income and expenditure surveys, the main data source for generating annual food security

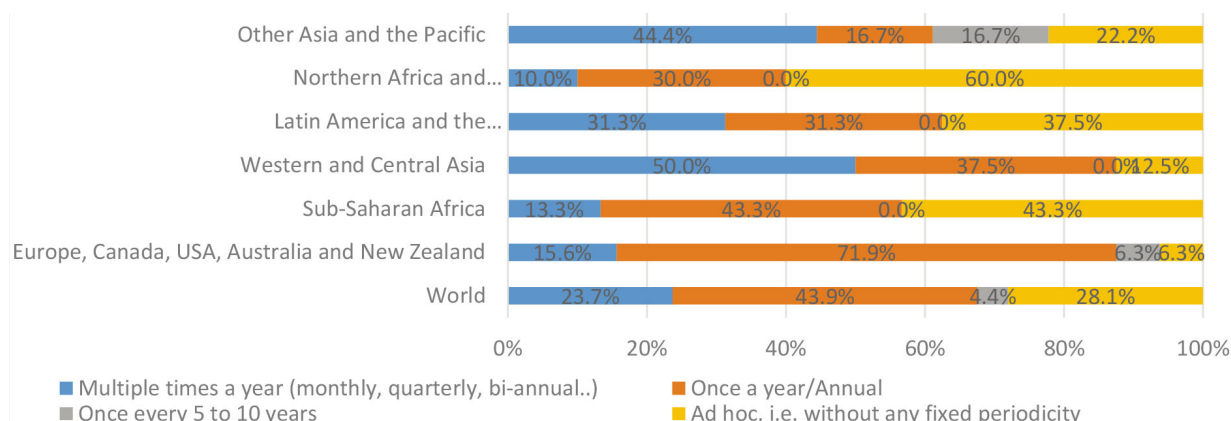


Fig. 4. Percentage of countries according to the frequency of their farm-based surveys, by frequency and region, period covering 2000–2019 (Source: FAO, Statistical capacity assessment for the FAO-relevant SDG indicators, 2019).

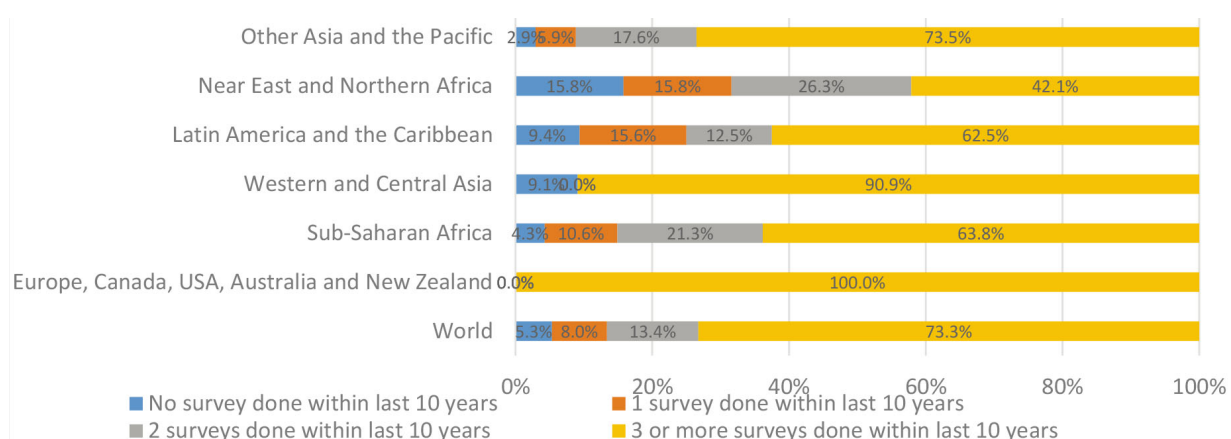


Fig. 5. Percentage of countries according to the frequency of their surveys on household income, consumption and expenditure in the last 10 years (period covering 2011–2020), per frequency and region (Source: World Bank, Statistical Performance Indicators Database, 2021).

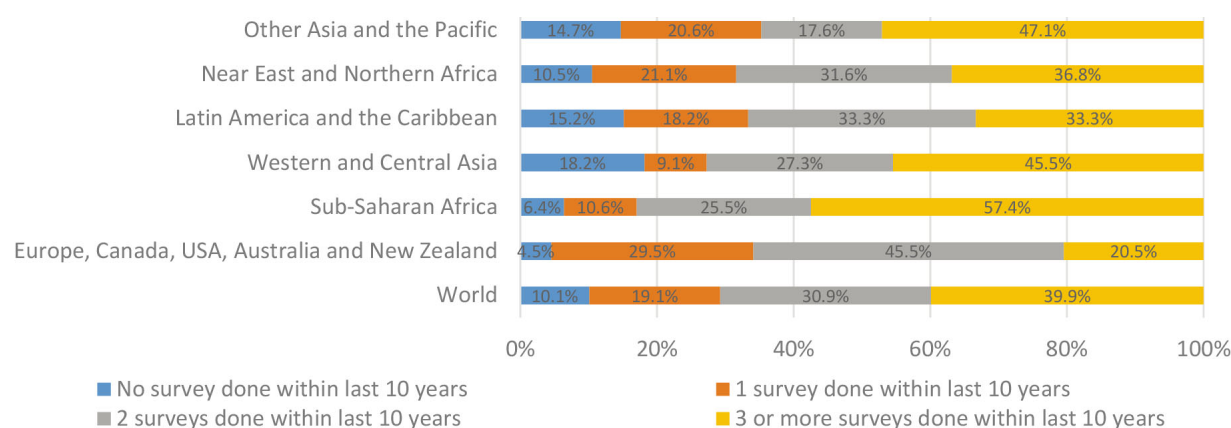


Fig. 6. Percentage of countries according to the frequency of their household surveys on health in the last 10 years (period covering 2011–2020), per frequency and region (Source: World Bank, Statistical Performance Indicators Database, 2021).

Table 2

Percentage of countries according to the frequency of their household surveys on health in the last 10 years (period covering 2011–2020), per frequency and region

| Use of remote sensing data in official statistics | World | Europe, Canada, USA, Australia and NZ | Sub-Saharan Africa | Central and Western Asia | Latin America and the Caribbean | Near East and North Africa | Other Asia and the Pacific |
|---|-------|---------------------------------------|--------------------|--------------------------|---------------------------------|----------------------------|----------------------------|
| To establish a sampling frame for surveys | 33.3% | 20.0% | 20.8% | 37.5% | 60.0% | 37.5% | 43.8% |
| To improve sampling design | 31.9% | 16.0% | 26.1% | 37.5% | 57.1% | 37.5% | 37.5% |
| To validate/improve survey estimates | 30.8% | 29.2% | 9.1% | 25.0% | 57.1% | 50.0% | 33.3% |
| To support the data collection and field work operations of a census/survey | 43.0% | 32.0% | 45.8% | 14.3% | 64.3% | 50.0% | 46.7% |
| To produce disaggregated data | 30.4% | 25.0% | 21.7% | 25.0% | 50.0% | 50.0% | 26.7% |
| To produce land cover/land use maps | 54.3% | 48.0% | 54.2% | 25.0% | 80.0% | 62.5% | 50.0% |
| To monitor crop area/crop yield | 34.4% | 30.8% | 40.9% | 0.0% | 50.0% | 50.0% | 25.0% |
| To monitor forest area and deforestation | 48.9% | 44.0% | 60.9% | 25.0% | 64.3% | 42.9% | 41.2% |
| To inform Early Warning System | 33.3% | 10.0% | 45.0% | 0.0% | 61.5% | 37.5% | 33.3% |
| At least one use of Remote sensing data in official statistics | 59.4% | 50.0% | 66.7% | 37.5% | 80.0% | 62.5% | 55.6% |

(Source: FAO, Statistical capacity assessment for the FAO-relevant SDG indicators, 2019).

indicators such as the prevalence of undernourishment (SDG indicator 2.1.1), are quite frequent in some regions, but are collected less than three times per decade in respectively 57.5%, 37.5% and 36.2% of countries in the NENA, LAC and Sub-Saharan regions. Moreover, health-related household surveys, a suitable data source for food security and nutrition-related modules, are even less frequent, with about one third of countries in the “Other Asia”, NENA, LAC and developed regions having conducted this type of survey at most once in the last decade.

The use of alternative data sources, such as Big Data and remote sensing data, for producing SDG indicators, represents a real opportunity for obtaining higher-quality, timely and more disaggregated food- and agriculture-related SDG indicators. For instance, earth observation data are a key data sources for SDG indicators 15.1.1 (forest area) and 15.4.2 (mountain green cover) and can be a source of basic data needed to compile or further disaggregate SDG indicators 2.4.1 (sustainable agriculture), 6.4.2 (water stress) and 15.2.1 (sustainable forest management). Table 2 shows that some regions such as LAC, NENA and Sub-Saharan have already started integrating the use of remote sensing in the production of official statistics, but more needs to be done to fully leverage the potential of this data sources.

3.3. Extent of capacity development needs with regards to food- and agriculture-related SDG indicators

Even for countries that regularly conduct relevant surveys and censuses, or have some capacity to use alternative data sources, it is not guaranteed that they are able or willing to apply SDG standards and compile the SDG indicators. Based on its 2019 SDG data gap assessment, FAO estimated that the global percentage of countries in need of capacity development support ranged from 39.5% and 55.3% for the various SDG indicators under its custodianship (see Table 3). Globally, SDG indicators with the highest percentage of countries requesting assistance were related to food security (2.1.1, 2.1.2), productivity and income of small-scale food producers (2.3.1, 2.3.2), productive and sustainable agriculture (2.4.1) and food losses (12.3.1a).

While assistance requests from developed regions were significantly lower with respect to developing regions, it was found that some support on specific indicators such as 2.4.1, 5.a.1 and 15.4.2 would still be relevant for these countries. Countries from the “Other Asia and the Pacific” grouping were the ones with the highest need of receiving support, in particular on SDG 2 indicators. Countries in Sub-Saharan Africa and NENA also expressed a high demand of capacity development support for all SDG indicators, often with well over 50% of them expressing a need for assistance on most SDG indicators under FAO custodianship.

Table 3

Percentage of countries that have declared a need for some form of capacity development to produce and/or use the SDG indicators under FAO custodianship, per SDG indicators and region

| SDG indicators under FAO custodianship | World | Europe, Canada, USA, Australia and New Zealand | Sub-Saharan Africa | Western and Central Asia | Latin America and the Caribbean | Near East and North Africa | Other Asia and the Pacific |
|--|-------|--|--------------------|--------------------------|---------------------------------|----------------------------|----------------------------|
| 2.1.1 | 55.3% | 12.5% | 76.7% | 75.0% | 50.0% | 70.0% | 83.3% |
| 2.1.2 | 55.3% | 12.5% | 73.3% | 75.0% | 56.3% | 70.0% | 83.3% |
| 2.3.1 | 53.5% | 9.4% | 63.3% | 75.0% | 62.5% | 80.0% | 83.3% |
| 2.3.2 | 54.4% | 9.4% | 66.7% | 87.5% | 56.3% | 80.0% | 83.3% |
| 2.4.1 | 51.8% | 15.6% | 60.0% | 37.5% | 68.8% | 70.0% | 83.3% |
| 2.5.1 | 49.1% | 6.3% | 66.7% | 50.0% | 68.8% | 60.0% | 72.2% |
| 2.5.2 | 44.7% | 6.3% | 56.7% | 37.5% | 68.8% | 60.0% | 66.7% |
| 2.a.1 | 41.2% | 3.1% | 53.3% | 37.5% | 43.8% | 70.0% | 72.2% |
| 2.c.1 | 50.9% | 12.5% | 66.7% | 37.5% | 68.8% | 70.0% | 72.2% |
| 5.a.1 | 44.7% | 15.6% | 53.3% | 50.0% | 62.5% | 50.0% | 61.1% |
| 5.a.2 | 37.7% | 9.4% | 50.0% | 50.0% | 43.8% | 50.0% | 50.0% |
| 6.4.1 | 47.4% | 9.4% | 66.7% | 62.5% | 50.0% | 60.0% | 66.7% |
| 6.4.2 | 46.5% | 12.5% | 66.7% | 62.5% | 50.0% | 50.0% | 61.1% |
| 12.3.1 | 56.1% | 12.5% | 63.3% | 75.0% | 87.5% | 80.0% | 72.2% |
| 14.4.1 | 45.6% | 6.3% | 60.0% | 62.5% | 56.3% | 60.0% | 66.7% |
| 14.6.1 | 41.2% | 9.4% | 60.0% | 37.5% | 31.3% | 80.0% | 55.6% |
| 14.7.1 | 39.5% | 6.3% | 46.7% | 50.0% | 50.0% | 70.0% | 55.6% |
| 14.b.1 | 42.1% | 9.4% | 60.0% | 37.5% | 43.8% | 80.0% | 50.0% |
| 15.1.1 | 41.2% | 6.3% | 56.7% | 50.0% | 43.8% | 60.0% | 61.1% |
| 15.2.1 | 46.5% | 9.4% | 63.3% | 75.0% | 56.3% | 70.0% | 50.0% |
| 15.4.2 | 49.1% | 15.6% | 70.0% | 87.5% | 31.3% | 80.0% | 55.6% |

Note: For each region, cells with the highest percentage of countries requesting assistance have been highlighted in orange to show regional differences in priority needs (Source: FAO, Statistical capacity assessment for the FAO-relevant SDG indicators, 2019).

Receiving support on SDG indicator 12.3.1.a was of greater priority in the LAC and NENA regions, whereas food security indicators (2.1.1, 2.1.2) were prioritized in Sub-Saharan Africa and Other Asia and the Pacific countries. For Western and Central Asia countries, assistance needs for these three indicators were equally important. Support on SDG indicators 2.3.1 and 2.3.2 was also identified as a priority in Western and Central Asia, NENA and Other Asia and the Pacific regions. Other regional differences highlighted by the SDG gap assessment were that while LAC countries mainly requested assistance on indicators related to land under productive and sustainable agriculture (2.4.1), plant and animal genetic resources for food and agriculture (2.5.1, 2.5.2) and food price anomalies (2.c.1); the prevalent interest of NENA countries was for some SDG 14-related indicators (14.6.1, 14.b.1) and SDG indicator 15.4.2; the need expressed by Western and Central Asia countries focused on SDG indicators 15.2.1 and 15.4.2; and the interest of Other Asia and the Pacific countries concentrated on SDG indicator 2.4.1.

FAO's SDG data gap assessment also allows identifying the type of capacity gaps experienced by national statistical agencies for each food- and agriculture-related SDG indicator. While this can vary from one indicator and country to another, Fig. 7 shows that, in general terms, the most requested type of assistance

was capacity development on the methodologies for compiling SDG indicators and their adoption in the national context. The second more requested type of support was on establishing new surveys or data sources to collect the basic data required for producing SDG indicators and on the data analysis and interpretation of the indicators. This pattern was generally observed across different regions. Despite their lower priority for countries, capacity development needs to improve institutional coordination on data reporting and adapting existing surveys and data sources for the collection of SDG data were also non negligible across all regions.

In addition, when asked if the country needed support on specific surveys or data sources relevant to the production of food- and agriculture-related SDG indicators, between 25.4% and 51.8% of countries declared a need for some form of assistance to conduct each of these data collection processes (see Table 4). Globally, assistance related to Census of Agriculture was the most requested type of assistance by data source (51.8%), followed by farm, crop and/or livestock surveys (36.8–40.4%) and data collection on fishery and aquaculture capture (36.8%). These priorities were similar in Western and Central Asia and in LAC, whereas different capacity development priorities could be observed in other regions. The percentages of countries requesting assistance were significantly higher in Sub-Saharan Africa

Table 4

Percentage of countries that have declared a need for some form of capacity development support to produce and/or use the main data sources required to compile SDG indicators under FAO custodianship, per type of data sources and region

| Data sources | World | Europe, Canada, USA, Australia and New Zealand | Sub-Saharan Africa | Western and Central Asia | Latin America and the Caribbean | Near East and Northern Africa | Other Asia and the Pacific |
|---|-------|--|--------------------|--------------------------|---------------------------------|-------------------------------|----------------------------|
| Census of agriculture | 51.8% | 15.6% | 76.7% | 62.5% | 75.0% | 40.0% | 55.6% |
| Livestock survey | 40.4% | 9.4% | 66.7% | 37.5% | 50.0% | 50.0% | 38.9% |
| Crop/farm survey | 36.8% | 6.3% | 56.7% | 37.5% | 43.8% | 50.0% | 44.4% |
| Fishery and aquaculture capture | 36.8% | 9.4% | 56.7% | 25.0% | 37.5% | 50.0% | 50.0% |
| Household budget and expenditure survey | 36.0% | 9.4% | 63.3% | 25.0% | 25.0% | 40.0% | 50.0% |
| Multipurpose household survey | 33.3% | 12.5% | 60.0% | 25.0% | 18.8% | 40.0% | 38.9% |
| Nutrition survey | 32.5% | 6.3% | 53.3% | 12.5% | 37.5% | 50.0% | 38.9% |
| Value chain analysis | 32.5% | 6.3% | 56.7% | 25.0% | 31.3% | 40.0% | 38.9% |
| Forest inventory assessment | 30.7% | 9.4% | 56.7% | 0.0% | 37.5% | 20.0% | 38.9% |
| Fish stock assessment (marine) | 28.9% | 6.3% | 50.0% | 12.5% | 31.3% | 40.0% | 33.3% |
| Water supply and use assessment | 25.4% | 0.0% | 53.3% | 25.0% | 31.3% | 20.0% | 22.2% |

Source: FAO, Statistical capacity assessment for the FAO-relevant SDG indicators, 2019.

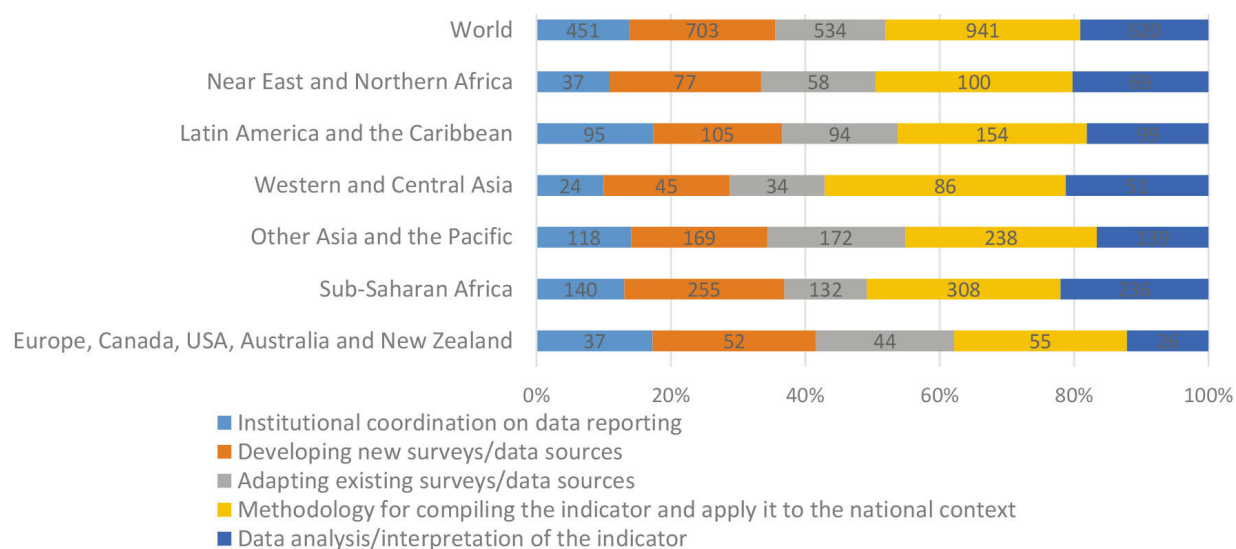


Fig. 7. Number of country requests for capacity development support to produce and/or use the SDG indicators under FAO custodianship, per type of support requested and region. Note: During FAO's assessment, countries were invited to express their needs for up to 3 type of priority support per indicator. The total number of country requests per type of support requested therefore reflects the sum of all support identified as top priority across all 21 SDG indicators under FAO custodianship. For each region, the distribution of the number of requests was stacked to 100% to facilitate the comparison between regions (Source: FAO, Statistical capacity assessment for the FAO-relevant SDG indicators, 2019).

(over 50% for all data sources), while their highest assistance needs were for Agriculture Census (76.7% of countries), livestock surveys (66.7%) and household budget and expenditure surveys (63.3%). Conversely, needs expressed by European countries, Canada, USA, Australia and New Zealand were considerably lower (between 0% to 15.6% for all data sources) and oriented towards agriculture censuses (15.6%), multipurpose household surveys (12.5%) and forestry inventory

assessment (9.4%). In the NENA region, countries' assistance requests prioritized farm, crop and livestock surveys (50.0%), and nutrition surveys (50.0%). Finally, other Asia and the Pacific countries emphasized capacity development on agriculture censuses (55.6%), fishery and aquaculture (50.0%) and household budget and expenditure surveys (50.0%) in their assistance requests.

Table 5

Percentage of countries in 2020 that had fully funded National Strategy for the development of statistics (NSDS), per funding status and region (SDG indicator 17.18.3)

| Funding status – NSDS | World | Europe, Canada, USA, Australia and New Zealand | Sub-Saharan Africa | Western and Central Asia | Latin America and the Caribbean | Near East and Northern Africa | Other Asia and the Pacific |
|-----------------------|-------|--|--------------------|--------------------------|---------------------------------|-------------------------------|----------------------------|
| Fully funded | 38.1% | 76.6% | 12.8% | 63.6% | 21.2% | 47.4% | 25.0% |
| Not fully funded | 30.5% | 8.5% | 46.8% | 9.1% | 42.4% | 31.6% | 32.5% |
| Data not available | 31.5% | 14.9% | 40.4% | 27.3% | 36.4% | 21.1% | 42.5% |

Source: SDG Global Database, December 2021.

3.4. Availability of funding resources for official statistics

Conducting regular and relevant data collection processes and responding to the multi-faceted capacity development needs for producing SDG indicators, comes with a hefty price tag. A third factor that can explain the slow uptake of SDG standards is thus the insufficient funding resources at the disposal of official statistics. One way to assess the sufficiency of statistics financing is to consider to what extent the National Strategy for the Development of Statistics (NSDS) is fully funded. SDG indicator 17.18.3 was designed for this purpose.

As shown in Table 5, the percentage of countries with a fully funded NSDS was quite low in Sub-Saharan Africa (12.8%), LAC (21.2%), Other Asia and the Pacific (25%) and NENA regions (47.4%). For these countries, the contribution of national governments, resource partners and other partners must significantly increase to ensure the availability of high-quality, timely and reliable data sufficiently disaggregated and relevant to the national context, as foreseen by SDG target 17.18.

In terms of resource partners, the latest *Partner report on support to statistics* [16] offers a pessimistic prospect. On the one hand, overall funding to data and statistics has largely stagnated over the past decade, despite recent massive increases in data demands as a result of the COVID-19 pandemic. The report estimates that the total international funding to data and statistics was USD 647 million in 2019 and USD 624 million in 2020 (projected value). Of this, official development assistance to data and statistics (USD 551 million) represented a mere 0.3% share of total ODA in 2019. In other words, projects to support data and statistics seem to remain low on the priority list of donors and far behind the estimated target (0.7% of ODA) for the full implementation of the Cape Town Global Action plan for Sustainable Development Data [17].

On the other hand, the report shows that in the midst of the pandemic, the share of partner funding dedicated to agriculture data and statistics decreased from 10% for the period 2017–2020 to 8% since 2020. The fact that

a substantial share of COVID-19 related support went to health constitutes the main explanation of this new trend. Indeed, according to the same report, primary support to data and statistics in the health sector has increased from 10% to 34%, impacting negatively the share of resources allocated to other sector statistics. While innovative financing instruments and tools such as the Global Data Facility and the Clearinghouse on Financing Development Data might have an impact on future investments in support to statistics, it is too early to understand how this could benefit food and agriculture statistics.

Finally, another constraint that limits the availability of adequate resources to support SDG monitoring is the frequent and systematic exclusion of, respectively, upper-middle income and high income countries from the list of beneficiaries of projects to support data and statistics. SDG indicators are expected to be produced by both developed and developing countries and, as already showed in the previous sections, for many indicators, regions with a larger share of developed and upper-middle income countries are either only marginally ahead of developing countries in terms of coverage, at the same level or indeed lag behind other regions. Providing those countries with the capacity development support they need is therefore highly challenging.

4. FAO's two-pronged strategy to accelerate the production and use of food and agricultural statistics, in particular SDG indicators by national statistical systems

Building the statistical capacity of national statistical systems to adapt to international standards is a collective endeavour. Institutions at national, regional and international level must determine the best approach to address the various gaps given their respective mandate, priorities, expertise and resources.

A useful way to understand the roles of each stakeholder is to refer to the general principle of *common but differentiated responsibilities* recalled in paragraph 12

of the Resolution on the 2030 Agenda for Sustainable Development. Despite this principle's origins in the environmental sphere, it can be easily adapted to the 2030 Agenda itself and, by extension, to the SDG indicator framework. As a framework grounded in the principle of "country ownership", countries have the primary responsibility in reporting global SDG indicators, yet a number of other actors – regional and international, public and private – also have their respective roles to play:

- **Countries** are responsible for producing SDG indicators according to established international methodologies and standards and reporting them to the corresponding custodian agencies. To do so, it is usually advisable that countries designate specific entities and persons with focal point responsibility over each SDG indicator, as well as ensure that the production of global SDG indicators is prioritized in the National Strategy for the Development of Statistics (NSDS). Within each country, the National Statistical Office has a key dual role in this respect, as both a producer of a large portion of SDG indicators and as the coordinator of the entire National Statistical System, providing quality assurance and oversight over statistical data reported by other national entities directly to custodian agencies. The ability of the NSO to fulfil this role depends not only on having the required technical capacity, but also the institutional mandate/independence supported by the appropriate legal framework. To help NSOs in this aspect of their role, the IAEG-SDG Guidelines on Global Reporting stipulate that the NSO should be copied in all communications between other national reporting entities and custodian agencies. Most countries have designated one or more "NSO SDG focal points" for this purpose, who also serve as a first point of entry for custodian agencies trying to collect data on indicators for which no established data collection and reporting mechanism exists.

Besides reporting SDG indicators *per se*, countries are also responsible for contributing to the overall follow-up and review process of the 2030 Agenda, chiefly by means of *Voluntary National Reviews* (VNRs). VNRs should adhere to the principles laid out in paragraph 74 of the UN Resolution on the 2030 Agenda, including "tracking progress in implementing the universal Goals and targets". The *Voluntary common reporting guidelines for voluntary national reviews at the high-level political*

forum for sustainable development (HLPF) further clarify that such reviews should report on the "status of SDG implementation based on statistical data, using SDG indicators to the extent possible"... "but countries may also choose to refer to complementary national and regional indicators".

- **Custodian agency** responsibilities are codified in the unassuming paragraph 28 of the IAEG-SDG Report to the forty eighth session of the UN Statistical Commission. Accordingly:

The main responsibilities of these international agencies are to collect data from countries under existing mandates and through reporting mechanisms, to compile internationally comparable data in the different statistical domains, to support increased adoption and compliance with internationally agreed standards and to strengthen national statistical capacity. Other responsibilities of a custodian agency include: communicating and coordinating with national statistical systems in a transparent manner, including on the validation of estimates and data adjustments when these are necessary; compiling the international data series, calculating global and regional aggregates and providing them, along with the metadata, to the Statistics Division; preparing the storyline for the annual global progress report; and coordinating on indicator development with national statistical systems, other international agencies and stakeholders.

The references to "internationally comparable data" and "internationally agreed standards" thus reinforce the notion – already expressed in paragraph 75 of the UN Resolution on the 2030 Agenda for Sustainable Development – that it is the global SDG indicators that provide the principal instrument for the follow up and review of SDG Goals and targets, which may be "complemented by indicators at the regional and national level...".

Strengthening national statistical capacity, even though appearing like only one item on a long list of responsibilities, is actually a major duty that occupies a disproportional space in custodian agencies' SDG monitoring activities. The call is reinforced by paragraph 11 of UN Resolution 71/313, in which Member States "urged countries, the United Nations funds and programmes, the specialized agencies, the Secretariat, includ-

ing the regional commissions, the Bretton Woods institutions, international organizations and bilateral and regional funding agencies to intensify their support for strengthening data collection and statistical capacity-building, including capacity-building that strengthens coordination among national statistical offices. . . ”. With almost 200 countries in the world, limited resources at their disposal (see Section 3.4 above) and the absence – until very recently – of global SDG data funding instruments [18], custodian agencies have hitherto had the unenviable task of constantly trying to “do more with less”, coming up with a number of innovative solutions to solve this conundrum. These include innovative training modalities [19], system-wide Plans for strengthening synergies among international organizations’ efforts [20], and the UN Secretary General’s Data Strategy [21] suggesting useful steps that international agencies can take to ensure a more effective, integrated governance structure of data and statistics that is more responsive to emerging needs and geared toward unlocking the full potential of new/alternative data sources, Artificial Intelligence capabilities and other cutting-edge technologies. This is not to say that there isn’t still ample scope for custodian agencies to enhance their support to countries, particularly by better coordinating among themselves in order to leverage synergies and reduce duplications. A prime example of an area with yet untapped potential for further collaboration is the implementation of household surveys. The Intersecretariat Working Group on Household Surveys (ISWGHS) has estimated that a total of 77 SDG indicators – or one third of the entire SDG indicator framework – can potentially be sourced from household surveys, particularly in the areas of health, education, gender equality, poverty, hunger, labour and justice. However, with the exception of a handful of isolated and ad-hoc cases, the international organizations promoting the four major internationally-led household surveys (DHS, LSMS, MICS, LFS) have so far been rather cautious in systematically accommodating additional modules that could potentially cover the data requirements of new SDG indicators. This is a missed opportunity, with the result being that for many of the 77 indicators in question, the country coverage is still very low.

- **Regional organizations** do not have a direct role in the reporting of global SDG indicators as nei-

ther the 2030 Agenda nor related IAEG-SDG documents foresee a clear intermediation function for them in data transmissions between countries and custodian international agencies. Nonetheless, regional organizations can play a series of auxiliary roles that can prove pivotal for supporting countries in their respective regions report on SDG indicators. For instance, regional organizations can facilitate discussions between custodian agencies and countries to resolve data discrepancies and can provide additional capacity development support to countries, as echoed in the Cape Town Action Plan for Sustainable Development Data, which “recognizes the crucial role of cooperation among countries, regional organizations, and other international organizations and stakeholders in supporting countries’ plans and efforts in capacity building”. The potential contribution of regional organizations in the sphere of capacity development is often greatest on cross-cutting issues that do not hinge on the methodology of any one particular indicator, including on the implementation of a conducive legal framework that promotes the coordination role of the NSO; the design and implementation of key data sources such as censuses and surveys that underpin the production of multiple SDG indicators; and the integration of new/alternative data sources to complement traditional survey-based sources. Furthermore, regional organizations can help mobilize resources for statistical development support, assist in establishing an effective SDG reporting coordination structure at country level centred on the NSO, and promote cross-country fertilization and exchange of best practices in SDG reporting.

Some regional organizations have also developed their own regional “sustainable development” indicator frameworks, which, however, vary in their degree of alignment to the global SDG indicator framework. When these are well aligned with the global SDG indicator framework, they support synergies in capacity development activities between regional and international organizations. By contrast, such efforts may be undermined when regional indicator frameworks are misaligned with the global indicator framework. For instance, some regional indicator frameworks apply questionable applicability criteria to the inclusion of global SDG indicators, resulting in a cacophonous mix of regional indicators and global SDG indicators that suggests to countries that they are somehow

exempt from reporting global SDG indicator due to their very membership in a specific group. This is at best the wrong message that is likely to undermine the adoption of the global SDG indicator framework in clear contravention of the UN Resolution on the 2030 Agenda.

- **Private sector** entities have an important – and hitherto largely untapped – potential role in SDG reporting. Recalling the principle of universality pervading the 2030 Agenda, this does not only mean that the Agenda applies to all countries in the world, but to all relevant stakeholders within countries themselves. As such, one of the key gaps in country monitoring and reporting on progress towards the SDGs arises when seeking to capture the significant contribution of the private sector to the implementation of the SDG goals and targets. While many private-sector organizations – both large and small – are now collecting a significant amount of data related to their environmental, social and governance impact, these data are often not in a form that can be easily merged with government data; not aligned specifically with SDG targets and indicators; or not communicated to the relevant national authorities. This means that countries are not able to report on the full picture of progress and private companies are not held accountable (or given the credit they deserve) for their contribution to the SDGs. A number of recent initiatives are attempting to reverse this picture [22], defining global standards for corporate sustainability reporting allowing private sector entities to report on their contribution to SDG achievements, establishing national private sector reporting mechanisms, and deepening their collaboration with national and international organizations in sharing relevant data, with due regard to open data principles and data protection and privacy.

In the context of the UN reform and in particular the repositioning of the UN Development System, **UN Country Teams** (UNCTs) have acquired an elevated role in supporting countries in both achieving the SDGs and measuring progress toward their achievement. The reform and repositioning of the UN development system, spelled out in UNGA Resolution 72/279, calls for a cohesive UNCT that is able to implement a One-UN response beyond individual agency mandates, under the leadership of a new generation of Resident Coordinators that answer to the UN Secretariat rather

than UNDP. Central to the UNCT's mission is the implementation of the new UN Sustainable Development Cooperation Framework (UNSDCF), as the collective response of the United Nations to help countries address national priorities and gaps in achieving the 2030 Agenda for Sustainable Development. In this regard, available SDG indicators can inform the Common Country Analysis underpinning the UNSDCF, whereas addressing SDG data gaps should be promoted as a development priority in the UNSDCF, recalling the mantra of “what gets measured, gets done” and the importance of grounding decision-making on robust evidence. Therefore, the UNCT has an important role to play in supporting the implementation of the SDG indicator framework by ensuring that SDG indicators are mainstreamed in the UNSDCF and therefore prioritized in planning and investment. In practice, many UNCTs have not yet taken ownership of this objective, which is why FAO has made it a priority to support UNCTs in this regard, as will be explained below.

4.1. Positioning FAO and UN development agencies to accelerate country-level support on (food and agriculture) statistics

To accelerate the production and use of food and agricultural statistics, in particular SDG indicators by national statistical systems, and keeping the designated responsibilities of a custodian agency in mind, FAO has opted to pursue a two-pronged strategy: on the one hand, better positioning FAO and UN development agencies to accelerate country-level support on food and agriculture statistics and related SDG indicators; and on the other hand, scaling up targeted country-level technical assistance support.

The first prong of FAO's strategy for accelerating the production and use of food and agricultural statistics by national statistical systems, in particular SDG indicators, emphasizes collaboration across the UN system. It has two key constituent objectives: to strengthen the capacity of FAO decentralized offices and UN country teams to provide coordinated support on data and statistics at the national level; and to ensure that data and statistics are seen as development outcomes and fully integrated in UN Sustainable Development Cooperation Framework (UNSDCF) and FAO Country Programming Framework (CPF).

Strengthening of the capacity of FAO decentralized offices and UN country teams to provide coordinated support on data and statistics at national level.

Regarding the strengthening of the capacity of FAO decentralized offices and UN country teams to provide coordinated support on data and statistics at national level, the rationale stems from an evolving development cooperation context where both the repositioning of the UN development system and resources partners' priorities have shifted the focus from global-level umbrella programmes to more focused country and regional level projects aligned with the UNSDCF. In such a context, the potential role of UN Country Teams – and, by extension, of FAO decentralized offices – in providing coordinated support on data and statistics at national level, has increased dramatically, whereas at the same time, the capacities available and the resources dedicated to this task have not kept pace with increasing demands.

During the past few years, FAO had already taken some initial steps to strengthen the statistical capacities of Decentralized Offices, for instance by decentralizing three statistician posts from the Rome Headquarters to three FAO sub-regional offices in the Caribbean, Central Africa, and the Pacific. However, cognizant of the evolving landscape described above, while having constraints in the decentralization of regular programme staff from headquarter to field offices, in 2021 FAO began implementing a new approach to strengthening the statistical capacity of FAO Decentralized Offices. On the one hand, the approach foresees enhancing the statistical capacity of Decentralized Offices through a number of interlinked and mutually reinforcing initiatives, trainings and toolkits, and, on the other hand, leveraging the emerging network of coordination mechanisms and partnerships among UN agencies at the regional level for supporting country-level activities.

Initiatives to strengthen the statistical capacity of FAO decentralized offices including providing regional statisticians with dedicated resources; providing a toolkit and guidance for supporting the implementation of country-level strategic and operational activities; issuing *Guidelines on the Mainstreaming of Statistics and SDG indicators in UNSDCFs and CCA*; and providing dedicated training on SDG monitoring to Data Officers hired in each UN country office and to Monitoring and Evaluation (M&E) Officers present in FAO country offices. The Toolkit for supporting the implementation of country-level strategic and operational activities contains a list of recommended actions for FAO Decentralized Offices, as well as an inventory of all available FAO methodological and technical resources, with a view to scaling up support to SDG monitoring. Among the numerous new individual resources, the toolkit includes *Guidelines for Mainstreaming Statistics and SDG in-*

dicators in the UNSDCF; guidance on mobilizing additional extra-budgetary resources and a portfolio of generic project templates designed to support project formulation on key SDG indicators at national level; an inventory of statistical capacity development programmes, which also provides useful information on the ways to request assistance; and access to FAO's SDG indicator Country Profiles, which offer an instant and intuitive snapshot of SDG performance and SDG data gaps in each country.

In addition to these resources, the capacity of decentralized offices will be further strengthened by adjustments to the mobility of personnel and the decentralization of large global statistical capacity development programmes run by FAO HQ. Regarding the first point, the mobility of statistical personnel between FAO headquarters (HQ) and sub-regional/regional offices will be facilitated in both directions to create a more dynamic flow in the transfer of expertise. Moreover, various junior professional programmes such as the Associate Professional Officers (APO) programme and the Young Professionals Programme (YPP) will be leveraged to increase FAO's ranks in regional/sub-regional offices, drawing on statistical expertise readily available in the regions without necessarily transferring more posts from HQ to regional or sub-regional offices. As for the second point, large global capacity development programmes funded through extra-budgetary resources will be encouraged to decentralize portions of their capacity development activities to regional offices. For example, the "50x2030 Initiative" has already created a number of statistical positions in the FAO Regional Offices in Accra and Bangkok. This will help build regional statistical capacities, facilitate the integration of these programmes in regional and country-level frameworks, create synergies with other resource partners at regional level and reduce the workload of HQ experts already involved in data production and/or normative work.

In the same vein, FAO is also engaging with the recently established Global Network of Data Officers and Statisticians. With limited human and financial resources for statistics available at country level, FAO recognizes the potential for newly appointed UN Country Team Data Officers and Economists as conduits and facilitators of key statistical interventions. Therefore, to make the most of this resource, FAO, in coordination with other UN agencies, has been developing a bespoke training programme for UNCT Data Officers and Economists, to enable them not only to familiarize themselves on specific aspects of SDG reporting

and tools available to accelerate the production and use of SDG indicators at country level, but also to engage in the CCA/UNSDCF process more effectively. In particular, Data Officers and Economist can help ensure the mainstreaming of statistics capacity development programmes in the UNSDCF, as well as support the coordination and implementation of data-related commitments in the UNSDCF for those countries that are already implementing the UNSDCF. Having benefited from this comprehensive training programme, UNCT Data Officers and Economics will become a vital link between the NSO/NSS and custodian agencies and hence a key resource for ensuring that each UN country team develops one coordinated, innovative, and effective data and statistics programme to strengthen the National Statistical System and its ability to monitor SDG indicators.

Ensuring that data and statistics are fully integrated in UN Sustainable Development Cooperation Framework (UNSDCF) and FAO Country Programming Framework (CPF).

The importance of mainstreaming data and statistics in UNSDCFs and CCAs has already been highlighted above, when describing the vital potential role that UN Country Teams can play in supporting SDG monitoring. However, in practice, many UNCTs have not yet prioritized this objective, which is why FAO has made it a centerpiece of its strategy to accelerating the production and use of food and agricultural statistics, in particular SDG indicators, by national statistical systems. As the principal instrument for planning, implementation and reporting of UN development activities in each country, the UNSDCF also serves as the foundation of the UN system's accountability to the government, providing a comprehensive analysis of development challenges in each country and an evidence-based plan for overcoming these. Agency-specific programming agreements with the government, such as FAO's Country Programming Frameworks (CPFs) therefore need to be duly derived from and in line with the UNSDCF.

The initial analysis is framed as the "Common Country Analysis", which examines a country's progress towards the 2030 Agenda and the SDGs. It assesses trends, including for SDGs, with a particular focus on those that seem to be static or regressing. This analysis, in turn, should take as a starting point the available SDG indicators and any prior examination of their progress in the country, particularly prior VNRs the country may have submitted to the HLPF, though these may be supplemented by other pertinent sources of qualitative and quantitative data from across the data ecosys-

tem, including primary research and non-traditional data sources. Besides analysing the data themselves and drawing policy conclusions on that basis, the CCA also assesses the completeness of follow-up and review, including existing data gaps either for overall indicators or priority disaggregations.

In view of the importance of the UNSDCF as a foundational document for concerted UN action at country level, and the basis for FAO's own Country Programming Frameworks, FAO's Office of the Chief Statistician has developed internal *Guidelines for Mainstreaming Statistics and SDG indicators in the UNSDCF* for use by FAO decentralized offices. The Guidelines recall that proactive actions are needed for highlighting the importance of statistics and SDG indicators for supporting the achievement of the 2030 Agenda at country level in the UNSDCF, as a way of ensuring that statistical requirements are sufficiently recognized and funded. This is vital for ensuring that the outputs formulated within the new UNSDCF both support statistical activities and ensure commensurate financing for them. As such, the Guidelines provide a roadmap of important actions that relevant FAO personnel should take to embed statistical activities in UNSDCFs, articulated along five main steps of the UNSDCF process: Developing the Roadmap and Common Country Analysis (CCA); Designing the Cooperation Framework; Configuring the UN Country Team; Funding the Cooperation Framework; Implementation, Monitoring and Learning. For each step of the process, the Guidelines highlight relevant resources and tools that may be used to better integrate statistical activities in the relevant programming documents. Based on the Guidelines, FAO has also prepared an agency-agnostic checklist for mainstreaming statistics in UNSDCFs/CCAs, which may be used by any UN entity willing to further embed statistics and SDG indicators in UNSDCF programming.

4.2. Scaling-up targeted country-level technical assistance support

FAO's overall capacity development strategy to address capacity development needs related to the SDG indicators under its custodianship was revamped in 2019, when the final SDG indicator methodology was approved by the IAEG-SDG, signaling the closure of the period of intense methodological development that was the main priority in 2016–2018. The revamped capacity development strategy for SDG indicators is consistent with FAO's responsibilities as a custodian agency for 21 SDG indicators and fully aligned with the Cape

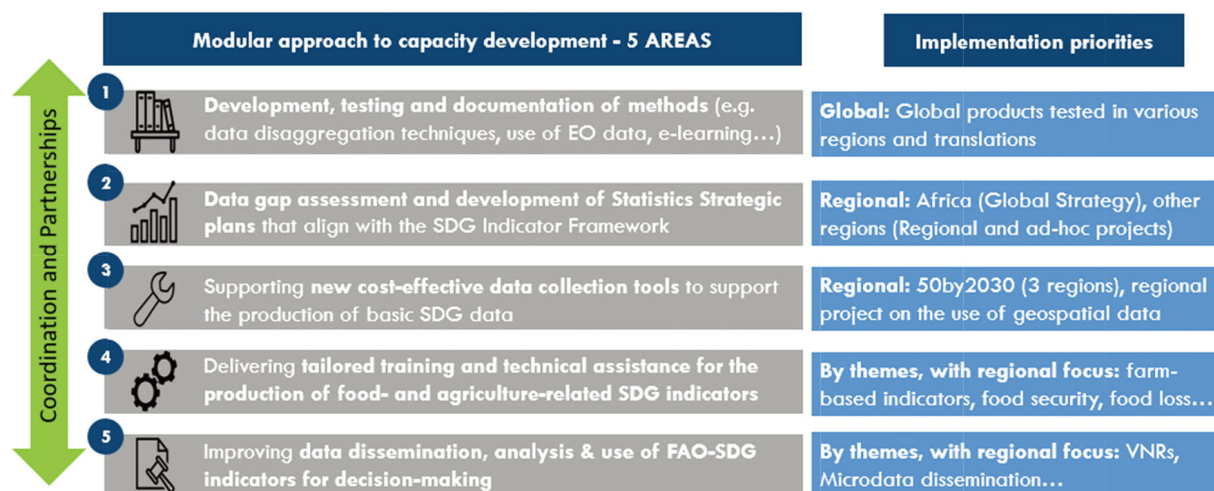


Fig. 8. FAO Umbrella Programme on Measuring the SDGs. Note: This figure shows FAO's strategy to improve the capacity of countries on SDG monitoring. The strategy, developed as a modular approach, foresees 5 areas of work where the implementation will be supported by adequate coordination and partnerships. The figure also highlights some of the implementation priorities that have been set in order to address the main gaps in SDG standard uptake, as presented in the previous section.

Town Global Action Plan for Sustainable Development Data, which provides the overarching framework for planning and implementing statistical capacity-building pertaining to the 2030 Agenda.

The FAO strategy, encapsulated in the “Umbrella Programme on Measuring the SDGs” was designed to ultimately help countries in all regions achieve the SDG targets related to hunger and food security, sustainable agriculture and the sustainable use and management of natural resources, through the production, dissemination and use of better and more regular information based on higher quality and granular SDG data.

The Umbrella Programme follows a modular approach that is articulated along five target outputs (see Fig. 8). This approach was adopted to facilitate the segmentation of activities based on priority development needs and resource mobilization opportunities, while pursuing the overall programme structure and objectives. The implementation plan of the programme has evolved over time to keep abreast of the latest capacity development needs and build on results already achieved.

The current (2021–2023) implementation plan has been designed to specifically address the data and capacity gaps described in the first sections of this paper as well as FAO's ambition to decentralize its support on SDG monitoring. It integrates the new ways of working and delivering capacity development that have emerged during the COVID-19 pandemic, and the needs expressed by countries for scaling up the use of alternative data sources for producing the indicators and/or further

disaggregating them. The overall implementation plan has been further delineated in five *Regional Roadmaps* which were agreed with FAO decentralized offices and regional statisticians. These roadmaps reflect regional context and prioritize activities for greater impact and are currently being implemented.

The next paragraphs of this paper will describe the structure and implementation modalities of the Programme, some of the results achieved since its creation, and some of the regional specificities captured in the Roadmaps to support the 2021–2023 implementation plan.

The first desired output of the Programme targets the development, testing and document of methods for the production, data disaggregation, nowcasting, forecasting and trend analysis of the food- and agriculture-related SDG indicators, as well as the issuance of guidance on the practical implementation of all SDG-relevant methods. The implementation of this output also includes the development and dissemination of methods for leveraging innovative sources such as geospatial data to fill the existing data gaps. Under this area of work, FAO has, for instance, established and disseminated the methodologies of all SDG indicators under its custodianship following close collaboration with countries for pilot testing and endorsement of methods. Similarly, FAO has issued Guidelines for disaggregating SDG data as well as for assessing trends and the current status of SDG indicators. In the 2021–23 implementation plan, a key priority for this output is to make existing methods more accessible to all coun-

tries by documenting use cases from different regions (e.g., on the application of data disaggregation techniques) and by translating existing material into other official UN languages in order to broaden its access to a larger audience. Another priority is to increase the availability of SDG data by refining some of the indicator methodologies, or proposing interim proxy measures for a few under-reported indicators until the internationally agreed upon methodology can be applied. While this objective is global in nature and was not captured in the regional roadmaps, FAO ensured that refined and proxy methodologies accounted for the main capacity gaps and data sources available in each region, and were tested keeping in mind regional context.

The second overarching output aims at regularly assessing data gaps and the statistical capacities of countries to report on SDG indicators, identifying the availability of relevant national data sources to generate them and mainstreaming the production of these indicators and/or data sources in national statistical plans and national SDG monitoring frameworks. The SDG data gap assessment conducted by FAO in 2019 proved to be a useful tool to generate accurate information for designing targeted capacity development interventions and for mainstreaming data and capacity development needs in national development strategies. The SDG data gap assessment also allowed the dissemination of SDG gap country profiles that were used by national statistical systems, FAO programmes and the broader statistical development community to design and align their interventions. Given the time-sensitive nature of such information, the 2021–2023 implementation plan recognized the need to conduct more frequent assessments of this sort to inform short-term actions and targeted activity programming. Annual calls for expression of interest have therefore been included in the Regional Roadmaps, so as to allow national statistical agencies to update FAO on their capacity development needs, and provide more information on relevant data collection mechanisms recently conducted and planned in the coming months. The first call will be launched in the first half of 2022 and will target institutions responsible for underreported indicators produced through household surveys and agriculture surveys and censuses – typically national statistical offices and/or statistical units within Ministries of Agriculture. Results of this call will be integrated in the regional capacity development plan of the Roadmaps. The second call, planned for 2023, would target other SDG indicators and therefore be addressed to different focal points in national statistical systems. FAO decentralized offices will play

a key role in promoting the calls, identifying the appropriate focal points for each call at the national level and supporting countries in answering the calls.

Regarding the work on mainstreaming the production of the indicators and their data sources in national statistical plans and national SDG monitoring frameworks, FAO has already implemented several national and regional projects that recommended how food- and agriculture-related SDG indicators could be better integrated in the respective national frameworks. In 2021–2023, the second phase of the Global Strategy to improve agriculture and rural statistics will support five countries from West and Southern Africa in elaborating multi-year Strategic Plans for agricultural and rural statistics (SPARS). This will constitute an opportunity to discuss national SDG monitoring frameworks and establish concrete plans to fill SDG data and capacity needs at the national level. Similar activities will be implemented on an ad-hoc basis in other regions as per country requests.

The third component of the Programme concerns the provision of country-level support to establish regular data gathering processes (e.g. agricultural surveys/censuses, use of geospatial information) that can enable the production of basic data needed in the compilation of the SDG indicators. This is the most ambitious and resource intensive part of the programme as it aims at increasing the availability of primary data sources for food and agriculture statistics. One of the flagship programmes under this component is the “50 by 2030 initiative” [23]. It has been already initiated in 11 countries and will support a total of 50 countries in establishing and regularly carrying out agricultural surveys, providing the necessary data and technical assistance for the compilation of SDG indicators 2.3.1, 2.3.2, 2.4.1, 5.a.1 and to some extent 12.3.1.a (collection of on-farm loss data only). The geographic distribution of the 50 participating countries will tackle the lack of regular agricultural surveys observed in certain regions (as shown in Fig. 4) and the capacity development needs expressed by countries (as shown in Table 4). Thirty countries in Sub-Saharan and North Africa, 5 countries in LAC and 5 countries in Asia and the Pacific are expected to participate in the initiative. As already mentioned, in line with FAO’s objective to strengthen the capacity of decentralized offices to support statistical activities, the “50 by 2030” foresees the decentralization of their activities in these three regions through FAO regional offices. Recruitment to build “50 by 2030” teams in each region has already started.

Another key FAO programme that contributes to this component is the World Programme for the Census of

Agriculture 2020. As discussed in Section 2, agriculture censuses remain a key source of agriculture data, for which countries have expressed the greater need for capacity development. In 2020–21 only, FAO has supported 65 countries through advisory services and technical assistance (40), project formulation (5) and basic training (20). Being a longstanding programme of FAO, support on the WCA has already been decentralized, with FAO regional statisticians playing a key role in engaging with countries and providing assistance. In the same vein, the 2021–23 implementation plan and regional roadmaps foresee a more systematic role for decentralized offices in promoting the inclusion of SDG-relevant data items in agriculture census questionnaires, and, once these data are collected, to provide additional support to facilitate the compilation and reporting of the SDG indicators. For 2021–23, countries in the planning stage of their agricultural census were particularly targeted for this type of country engagement.

Finally, assisting countries in establishing and using innovative methods for the production of SDG data produced based on geospatial information is another priority area of work under this component. As a first step, countries with relatively higher expertise on the use of Earth observation data were prioritized to accelerate the uptake of these new methods. For instance, several activities targeting LAC countries have been included in the regional roadmap and three of these countries (Ecuador, Guatemala and El Salvador) will receive support in upgrading their skills for the establishment of national crop monitoring systems. Countries in other regions will also benefit from this type of support based on availability of in-situ data and assistance requests (Senegal, Gabon, Guinea-Bissau, Cameroun and Afghanistan).

As for the fourth component of the Umbrella programme, the objective is to provide tailored capacity development to allow countries to include the relevant SDG indicator into existing national data collection instruments, compile and report it to FAO. For this component, capacity development activities – consisting primarily of a combination of training and hands-on technical assistance activities carried out by FAO experts – have been designed along 14 thematic clusters. The corresponding activities were defined based on data gaps and capacity development needs of the countries and the required data items and data sources for the production of the indicators. Through this component, FAO has already provided assistance to more than 150 countries through, regional or massive online training and in-country advisory services and technical assistance across all 14 thematic clusters. For 2021–23, im-

plementing activities were prioritized by regions and reflected in regional roadmaps. Indeed, in each region, priority was given to those thematic modules for which indicator reporting rates were the lowest, capacity development requests the highest, and data sources to produce the indicators were in principle available, in line with the findings of Sections 2 and 3. For instance, the module in support to food security indicators (2.1.1, 2.1.2) was prioritized in Sub-Saharan Africa, Western and Central Asia and the Other Asia and the Pacific region. Activities in support to the module on productivity and income of small food producers (2.3.1, 2.3.2) and agricultural land ownership (5.a.1) have been planned across regions, targeting countries with regular agricultural surveys. Technical support on the productive and sustainable agriculture module (2.4.1) has been planned or is being delivered more intensively in LAC and the Other Asia and the Pacific region, whereas countries from Europe, Canada, USA, Australia and New Zealand have been targeted for a massive online training on this indicator. The implementation of the food loss measurement module (12.3.1.a) has already started in the LAC region and will be extended to the other priority regions (NENA and Western and Central Asia). Ad-hoc support on the other SDG indicators and data disaggregation techniques were also included in the regional roadmaps based on specific needs and resources availability.

Finally, under the last area of work, FAO aims to implement a number of initiatives with a view to improving the use of SDG data in decision-making, including support for improving users' access to SDG-related food and agricultural data. A first initiative under this component consists in facilitating the dissemination of micro-level data used to generate the SDG indicators in order to stimulate policy research and allow for a more in-depth analysis of the data collected. To this end, FAO plans to support National Statistical Agencies in developing open data policies and at the same time mastering the technical tools, legal instruments, and operational procedures to make microdata accessible while preserving respondents' confidentiality. The available microdata files will also be disseminated on FAO Food and Agriculture Microdata (FAO) catalogue, a one-stop-shop to accessing existing micro-datasets on food and agriculture. For 2021–23, these activities have been embedded in the implementation of the 50 by 2030 initiative. The other initiative under this component aims at building the communication and analytical capacities of National Statistical Agencies. For 2021–23, two countries per region have been identified to receive support in building a coherent narrative on

food- and agriculture- related SDG targets in their upcoming Voluntary National Review (VNR), in particular by assisting them in using available SDG indicators and applying trends and status estimation techniques to assess their progress in SDG implementation.

By design, the implementation of these 5 areas of work will rely on effective coordination mechanisms between FAO Headquarter experts and decentralized offices, and with relevant national, regional and international stakeholders. Building on existing governance mechanisms, partnerships and initiatives, and focusing on achieving greater impacts, the 2021–23 activities planned under this cross-cutting programme component have been organized around three objectives: strengthening FAO's coordination mechanisms on SDG monitoring; establishing effective partnerships with external stakeholders; and improving communication and advocacy on SDG monitoring. The strategy to better position FAO and UN development agencies to accelerate country-level support on statistics described above was specifically established to achieve these goals. Regional specificities for achieving effective and impactful coordination between FAO, UN development agencies and national statistical systems are tackled in the Regional Roadmaps. Relevant additional stakeholders and partners have been identified in each region and collaboration mechanisms and activities have also been integrated in the roadmaps. For example, the Sub-Saharan African roadmap foresees a close collaboration on SDG indicators between FAO, the African Union Commission and regional economic communities, in order to strengthen alignment with the Malabo Declaration monitoring framework.

5. Conclusion

This paper has examined a multiplicity constraints to countries' adoption of international statistical standards through the particular lens of the SDG indicators, and has outlined FAO's capacity development strategy for tackling such constraints. SDG indicators offer a particularly illustrative test case for the adoption of international statistical standards, given that they include many new indicators whose methodological development was "fast-tracked" compared to the ordinary evolution of international standards, and are imbued with a mix of sometimes paradoxical notions, such as the principle of "country ownership", the "voluntary nature", as opposed to the need for international comparability and mutual accountability.

Key explaining factors hampering the adoption of SDG indicators as international standards include the general maturity of the SDG standards and the different perspectives of country ownership with regard to the SDG indicator framework; the low frequency of essential data collection processes (e.g. agricultural and household surveys/censuses) that can be adapted to the collection of the required data needed for the compilation of the SDG indicators (which took a further hit from COVID-19), the insufficient statistical capacity of national statistical agencies required to produce the SDG indicators, the limited financial resources from both domestic and international sources devoted to official statistics, as well as gaps in the coordination among custodian agencies. These findings are corroborated by the 2019 SDG data gaps assessment conducted by FAO, the World Bank's Statistical Performance Indicators 2021 figures, as well as the results of SDG indicator 17.18.3.

These differences call for a strong and coordinated global advocacy effort as well as more timely and targeted interventions by international institutions at all levels to support countries in responding to the data requirements of the 2030 Agenda. Building the statistical capacity of national statistical systems to adapt to international standards is a collective endeavour. To face this challenge, all relevant stakeholders, including countries, custodian agencies, regional organizations, the private sector, and UN country teams, must play their respective roles based on the notion of common but differentiated responsibilities and with due regard to their respective mandate, priorities, expertise and resources.

As the custodian agency for 21 SDG indicators, FAO is increasingly building the capacity of its regional and national offices to better mainstream food and agricultural statistics in regional and national cooperation strategies and activities as well as in resource mobilization efforts. Since 2019, FAO's revamped statistical capacity development strategy for SDG indicators is two-pronged: on the one hand, better positioning FAO and UN development agencies to accelerate country-level support on food and agriculture statistics and related SDG indicators; and on the other hand, scaling up targeted country-level technical assistance support. Regional roadmaps are currently being rolled out to support FAO's role in monitoring food- and agriculture-related SDG indicators and other statistical standards, taking into consideration regional particularities, the impact of the UN reform, action plans developed by UN Regional Commissions and other relevant regional partnership opportunities.

References

- [1] Statistical Commission, Report on the forty-seventh session, (8–11 March 2016).
- [2] Resolution adopted by the General Assembly on Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development (A/RES/71/313).
- [3] Resolution adopted by the General Assembly on 25 September 2015, 70/1. Transforming our world: the 2030 Agenda for Sustainable Development, par. 75
- [4] Dang H-AH, Pullinger J, Serajuddin U, Stacy B. 2021. *Statistical Performance Indicators and Index: A New Tool to Measure Country Statistical Capacity*. Policy Research Working Paper No. 9570. World Bank, Washington, DC. Available at: <https://openknowledge.worldbank.org/handle/10986/35301>; African Development Bank (AfDB), 2020, *Capacity Building in Africa for Agricultural and Rural Statistics: Status Up-date*. Abidjan, Côte d'Ivoire. Available at: <https://www.afdb.org/en/documents/capacity-building-africa-agricultural-and-rural-statistics-status-update-december-2020>; PARIS21. 2021. Partner Report on Support to Statistics 2021, Paris. Available at: <http://paris21.org/press2021>; PARIS21. 2019. Financing challenges for developing statistical systems: A review of financing options, PARIS21 Discussion Paper, No. 14, Paris. Available at: <http://paris21.org/paris21-discussion-and-strategy-papers>.
- [5] The reporting rate is a proxy measure of the real uptake of the SDG standards by countries for two reasons: a) some SDG indicators are produced directly by FAO using available national data or information collected by the Organization itself; however, since FAO estimates are validated by countries before their dissemination, it is assumed that countries that validate the data have a good understanding of the standards; b) countries may have agreed to adopt the specific SDG indicator and put in place an appropriate data collection system, but the process of data collection and analysis of the results may not have been completed and therefore results may have not been disseminated yet at national and global levels.
- [6] This analysis doesn't take into account the principle of "leaving no one behind" of the 2030 Agenda, commonly operationalized by disaggregating SDG indicators at sub-national level, such as by geographic location, sex, age, or other relevant groupings that are able to shed light on possible inequalities hidden by national averages. At the moment, very few SDG indicators under FAO custodianship have been disaggregated in the SDG global database. As FAO is still working with countries to produce this information, it is too early to provide a realistic picture of the situation.
- [7] For the purpose of this paper, the authors used non-standard regional groupings. The groups used were defined based on FAO regional operations and initiatives, in order to better inform the design of FAO's regional roadmaps – see Annex 2 for region composition.
- [8] The overall reporting rate corresponds to the average of the 21 indicator-level reporting rates calculated on the basis of the availability of at least one data points on the global SDG database for the period 2017–2021.
- [9] Non-standard regional groupings. See Annex 2 for more details.
- [10] Dang et al., op. cit.; the Statistical performance indicators (SPI) framework assesses the maturity and performance of 174 national statistical systems according based 5 pillars (data use, data services, data products, data sources and data infrastructure) and 22 underlying dimensions. Produced for the first time in 2021, the overall SPI score presented in this paper combines the current 51 indicators established to assess 14 out of the 22 dimensions as measurable indicators are being developed to assess the remaining 8 dimensions.
- [11] Dang et al., 2021, op. cit.
- [12] <https://unstats.un.org/sdgs/iaeg-sdgs/tier-classification/>.
- [13] https://unstats.un.org/sdgs/files/IAEG-SDGs%20Terms%20of%20Reference_2017.pdf.
- [14] FAO. 2020. Impact of COVID-19 on national censuses of agriculture (Status overview). Rome; See also World Bank/UNSD Surveys on the Impact of COVID-19 on National Statistical Offices, <https://www.worldbank.org/en/research/brief/survey-of-national-statistical-offices-nosos-during-covid-19>.
- [15] FAO, 2019, Statistical Capacity Assessment for the FAO-SDG Indicators, <http://www.fao.org/sustainable-development-goals/indicators/statistical-capacity-cp-for-sdg-indicators/en/>.
- [16] PARIS21. 2021, op. cit.
- [17] PARIS21, 2019, op. cit.
- [18] The implementation of two linked instruments, the Clearinghouse for Financing Development Data and the World Bank-hosted Global Data Facility were only announced at the October 2021 UN World Data Forum.
- [19] See Gennari, P., Bizier, V., Navarro D., Petracchi, C., 2021, New needs and training modalities for the sustainable transfer of know-how on food and agriculture statistics in the COVID-19 era, <https://www.fao.org/publications/card/en/c/CB6962EN/>.
- [20] See CEB System-wide Road Map for Innovating UN Data and Statistics developed by the UN Committee of Chief Statisticians, <https://unsceb.org/system-wide-road-map-innovating-United-nations-data-and-statistics>.
- [21] UN Secretary General's Data Strategy, <https://www.un.org/en/content/datastrategy/index.shtml>.
- [22] See FAO Guidance on core indicators for agrifood systems – Measuring the private sector's contribution to the Sustainable Development Goals, <https://www.fao.org/documents/card/en/c/cb6526en/>.
- [23] The 50x2030 INITIATIVE TO CLOSE THE AGRICULTURAL DATA GAP is a multi-partner program that seeks to bridge the global agricultural data gap by transforming country data systems in 50 low- and lower-middle-income countries in Africa, Asia, the Middle East and Latin America by 2030. This unprecedented initiative focuses on improving country-level data by building strong nationally representative survey programs for agriculture statistics.

Annex 1: SDG indicators under FAO custodianship

-
- 2.1.1 Prevalence of undernourishment
 - 2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)
 - 2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size
 - 2.3.2 Average income of small-scale food producers, by sex and indigenous status
 - 2.4.1 Proportion of agricultural area under productive and sustainable agriculture
 - 2.5.1.a Number of plant genetic resources for food and agriculture secured in medium or long term conservation facilities
 - 2.5.1.b Number of animal genetic resources for food and agriculture secured in medium or long term conservation facilities
 - 2.5.2 Proportion of local breeds classified as being at risk of extinction
 - 2.a.1 The agriculture orientation index for government expenditures
 - 2.c.1 Indicator of (food) price anomalies
 - 5.a.1 (a) Percentage of people with ownership or secure rights over agricultural land (out of total agricultural population), by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure
 - 5.a.2 Percentage of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control
 - 6.4.1 Change in water use efficiency over time
 - 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
 - 12.3.1.a Global food loss index
 - 14.4.1 Proportion of fish stocks within biologically sustainable levels
 - 14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
 - 14.7.1 Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries
 - 14.b.1 Degree of implementation of legal/regulatory/policy/institutional frameworks which recognizes and protects access rights for small-scale fisheries
 - 15.1.1 Forest area as a percentage of total land area
 - 15.2.1 Progress towards sustainable forest management
 - 15.4.2 Mountain Green Cover Index
-

Annex 2: Region composition

For the purpose of this paper, the authors used non-standard regional groupings. The groups used were defined based on FAO regional operations and initiatives, in order to better inform the design of FAO's regional roadmaps.

Europe, Canada, USA, Australia and New Zealand: Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Estonia, Faroe Islands, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland, Canada, United States of America, Australia and New Zealand.

Sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Togo, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

Latin America and the Caribbean: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay and Venezuela (Bolivarian Republic of).

Near East and North Africa: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates and Yemen.

Other Asia and the Pacific: Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Cook Islands, Democratic People's Republic of Korea, Fiji, India, Indonesia, Iran (Islamic Republic of), Japan, Kiribati, Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Micronesia (Federated States of), Mongolia, Myanmar, Nauru, Nepal, Niue, Pakistan, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tokelau, Tonga, Tuvalu, Vanuatu and Viet Nam.

Western and Central Asia: Armenia, Azerbaijan, Cyprus, Georgia, Israel, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan, Uzbekistan.