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### **Transport-related Sustainable Development Goals**

## **Measuring and Monitoring Sustainable Development Goals**

1. This document has been prepared by a consultant working for the UNECE Nexus team on measuring and monitoring the Sustainable Development Goals, one of four cross-divisional taskforces to improve collaboration and identify synergies across different ECE sub-programmes. This draft report, which will feed into a future publication, aims to assist countries in the challenges of measuring and monitoring the Sustainable Development Goals, and sets out a number of policy recommendations.

# Measuring and Monitoring Progress Towards the Sustainable Development Goals

Report to the United Nations Economic Commission  
for Europe SDG Measuring and Monitoring Nexus

## Final report

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## Executive summary

In order to better support member States in achieving the Sustainable Development Goals (SDGs), the United Nations Economic Commission for Europe (ECE) has identified four areas where its programmes and expertise converge. These “nexus” areas are:

- [Sustainable use of natural resources](#)
- [Sustainable and smart cities for all ages](#)
- [Sustainable mobility and smart connectivity](#)
- [Measuring and monitoring progress towards the SDGs.](#)

This report has been prepared to support ECE efforts within the fourth nexus area, measuring and monitoring progress towards the SDGs. All countries face challenges in measurement and monitoring, whether in terms of finding suitable methodologies, the quality of underlying data, the management and sharing of information or the ability to report indicators with the desired degree of disaggregation.

Assessing progress towards the 2030 Agenda for Sustainable Development (2030 Agenda) and the associated SDGs is a complex, multi-faceted process involving actors at the sub-national, national, regional and global levels. The activities related to compiling and disseminating the SDG indicators are commonly referred to as “measurement and monitoring” and are largely the domain of official statisticians and other data providers. All countries face challenges in measurement and monitoring, whether in terms of finding suitable methodologies, the quality of underlying data, the management and sharing of information or the ability to report indicators with the desired degree of disaggregation. The focus of this report is on the challenges faced by countries in the ECE region and on the responses taken by ECE and other organizations at the national, regional and global levels to these challenges. More specifically, challenges and responses were reviewed in relation to:

- Defining the roles of National Statistical Offices (NSOs) in SDG measurement and monitoring and supporting NSOs in executing those roles
- Coordinating the activities of data producers and users involved in measurement and monitoring and ensuring collaboration among them
- Modernizing statistical processes and systems to better support measurement and monitoring
- Strengthening basic statistics and accounts for use in compiling SDG indicators
- Dissemination and communication of SDG statistics and indicators
- Securing adequate human and financial resources.

The report draws mainly upon on-line materials available from the United Nations and other global institutions and from ECE and other regional institutions. To supplement this – and to gain direct insight into the challenges member States face – an electronic questionnaire was used to gather information from member States regarding their challenges and the responses they have taken to them. Of 56 ECE member States, 51 replied to the questionnaire. The most common challenges reported by these 51 countries were:

- Difficulties coordinating and collaborating among stakeholders
- Inadequacy of human and financial resources
- Gaps in required data
- Difficulties in disaggregating statistics to reveal trends in specific sub-populations (for example, women, the poor, urban versus rural populations and persons with disabilities).

## General findings

The first finding from the general review of challenges and responses is simply how impressive are the breadth, depth and quality of the actions that global, regional and national organizations have taken to support measurement and monitoring. Unlike in the case of the Millennium Development Goals, when measurement and monitoring were an afterthought and progress reporting was not as robust as it should have been, the national, regional and global statistical communities have all risen admirably to the challenge of measurement and monitoring the SDGs. This bodes well not just for the realization of the 2030 Agenda's ambitions, but also for the future of cooperation and mutual support between the policy agencies of governments and their statistical counterparts.

NSOs and other members of national statistical systems (NSSs) in the ECE region are encouraged to familiarize themselves with the impressive range of supports for SDG measurement and monitoring available to them from ECE and other regional and global organizations. This report covers the most important of these, but it should only be seen as a starting point. Far more initiatives, programmes and policies exist than could be covered here. Thus, NSOs and other members of NSSs are encouraged to explore on their own the supports that are available from regional and global organizations. At the same time, ECE should encourage other regional and global organizations with initiatives, programmes or policies in place that, whether explicitly or indirectly, support SDG measurement and monitoring in the region to ensure their efforts are well-known among member States and the members of their NSSs.

When it comes to defining and supporting the role of NSOs, the global community is clear that NSOs must be at the centre of SDG measurement and monitoring. This is acknowledged in the text of the 2030 Agenda itself. While such strong support for the role of NSOs is appropriate and welcome, it must also be tempered with a dose of realism regarding what NSOs can and cannot achieve. NSOs are struggling in many ways (some predictable and others less so) to fulfil the role they have been given. ECE should deepen its engagement with NSOs to understand more fully the challenges they face in fulfilling their central roles in SDG measurement and monitoring, while also acknowledging that municipalities, academia and many others play active roles in supporting NSOs in measurement and monitoring. Particular attention should be paid to their challenges in coordinating and collaborating with data users and other stakeholders involved as it is likely that challenges in this regard are preventing NSOs from fully meeting their expectations.

Though modernization of statistical process was noted as a challenge for SDG measurement and monitoring by about half of member States, it did not rank among the challenges countries were most concerned about. It is unclear whether this is because countries mostly know how to overcome the modernization challenges they face or because they do not see modernization as a top priority in terms of SDG measurement and monitoring. Certainly, regional and global organizations have clearly spelled out the benefits – indeed, the imperative – of modernization in the context of measurement and monitoring. Yet when asked in the survey to provide examples of specific modernization initiatives taken, relatively few initiatives were reported. In particular, no significant mention was made of using a non-traditional source of data to meet the challenge of SDG measurement and monitoring.

ECE should work with other regional and global organizations to assist NSOs in moving beyond the promise of modernization – in particular, the promise of using non-official data sources (for example, big data) – to the realization of its benefits. Countries with well-funded, large statistical systems are likely to be ahead of those with smaller, more resource-constrained systems. ECE should engage with member States that have achieved positive outcomes through modernization to transfer the lessons learned to those with less capacity to modernize all on their own. These efforts to support modernization should extend to

regional and local members of NSSs to assist them in fulfilling their roles (for example, production of regionally disaggregated data) in measuring and monitoring the SDGs.

In the case of strengthening basic statistics and accounts, ECE and other regional and global communities have a great deal to offer, particularly in the areas of environmental and gender statistics that are both relatively under-developed and also key to SDG measurement and monitoring. Yet, in spite of the cross-cutting nature of the 2030 Agenda itself, much of the work done in the statistical domain within regional and global organizations remains siloed within traditional organizational structures. This is, arguably, not the best example to set for countries faced with the challenge of integrated measurement and monitoring. Regional and global organizations should, therefore, demonstrate leadership in the domain of SDG measurement and monitoring by working across traditional structures to support member States.

ECE could, for example, undertake to prepare a handbook on the compilation of disaggregated statistics for SDG measurement and monitoring drawing on expertise and examples from all Divisions. Such a handbook could be of great value to member States, as it would address one of the major challenges they report facing measurement and monitoring. Successfully preparing such a handbook with pan-ECE contributions would demonstrate to member States the value of coordination and collaboration in addressing the complexities of measurement and monitoring.

With regard to dissemination and communication, there is a need to improve the collaboration between data producers and data users, to improve the usability of data in policy process. There is also a compelling case for a high degree of standardization across member States, regional and global organizations when speaking about data transmission. It would serve no one well if 56 different national reporting standards were created to support SDG measurement and monitoring when a single standard, suitably adapted to meet country-specific needs where required, could suffice. ECE should work with other regional and global organizations to develop a single, flexible SDG reporting standard (ideally based upon the existing SDMX standard). This work could build upon the initiatives already taken by the United States of America and the United Kingdom of Great Britain and Northern Ireland in this regard.

Finally, human and financial resources are, as seems always to be the case, a concern for many countries. In spite of the Dubai Declaration's clear call to mobilize funding for SDG measurement and monitoring, no global funding mechanism is yet in place. Regrettably, the pandemic of 2020 may well make it more difficult for the foreseeable future to create such a mechanism. Nonetheless, ECE should, to the fullest extent possible, act upon the Dubai Declaration's call for increased funding for measurement and monitoring and should encourage other regional and global institutions to do so as well. In addition, low-cost means should be found to improve the skills and knowledge of member State experts required for measurement and monitoring. Emphasis should be placed on on-line learning, as this is inexpensive, adaptable, does not require travel and, if done well, highly effective. More traditional forms of capacity building – workshops, expert group meetings and conferences – should also be pursued. ECE is well regarded for its capacity to organize and deliver these kinds of events and this capacity should be leveraged and strengthened to the extent possible. At the same time, ECE should actively explore new ways to deliver this capacity building that are less expensive, more flexible and fully exploit modern electronic communications potential.

## Findings from the member State survey

Beyond the general findings above, additional insights into what is working well – and what is not – at the member State level were gleaned from the survey. With regard to coordination and collaboration – by far the most commonly reported challenge – the results show clearly that naming some agency, whether it is the NSO (as recommended by the Conference of

European Statisticians<sup>1</sup>) or another agency, a national lead on coordination and collaboration is essential. Coordination and collaboration do not happen on their own; they require dedicated effort. Member States' experiences suggest it does not appear to matter much whether the lead role on coordination and collaboration is played by the NSO or another agency; the rate of success is about the same in either case. It does appear, however, to be easier to succeed in coordination and collaboration in cases where the NSO has full responsibility for SDG measurement and monitoring<sup>2</sup>, though this is not a guarantee of success in this regard.

Given this, countries should ensure that an appropriate agency (ideally the NSO as recommended by the Conference of European Statisticians, though another relevant agency could take on this role if the NSO cannot do so alone) is assigned to the lead role for ensuring coordination and collaboration in SDG measurement and monitoring. Countries should expect that this agency's role will be easier in cases where the NSO has full responsibility for measurement and monitoring. In other cases, coordination and collaboration will be more difficult (due to the larger number of stakeholders involved) and, therefore, the effort required to succeed in it should be expected to be greater.

In terms of financial and human resource challenges, the survey showed a clear link between these and (i) the need for increased technical and managerial capacity and (ii) challenges related to modernizing statistical processes. This is to be expected, since both technical and managerial capacity, on the one hand, and modernization, on the other, require significant application of financial and human resources. At the same time, adequate human and financial resources do not appear to mean that the need for increased technical and managerial capacity or modernization disappear.

The survey results reveal an arguably unexpected – and worrying – correlation between countries that noted data gaps as a concern and that also gave their NSO full responsibility for SDG measurement and monitoring. All countries for which data gaps were a concern had NSOs with full responsibility for SDG measurement and monitoring. This outcome might be explained on the grounds that even the most sophisticated NSO cannot hope to meet all data needs related to measurement and monitoring on its own. At the same time, it is worrying, as it suggests that at least some NSOs are unable to reach beyond their own databases to obtain the data they require from other organizations. This is consistent with the finding that cooperation and collaboration is the greatest challenge to measurement and monitoring in the ECE region. Countries in which overall data availability for SDG measurement and monitoring is known to be low, and in which mechanisms for assuring inter-agency coordination and collaboration are weak, should devote additional efforts to coordination and collaboration to ensure the NSO can access all available data for measurement and monitoring. If these additional efforts fail, it may be preferable to give the NSO only partial responsibility for measurement and monitoring rather than to frustrate its efforts to report on indicators it is unable to obtain data for.

Another arguably unexpected result revealed by the survey is that all of the countries that reported challenges in disaggregating statistics to reveal trends in specific sub-populations were countries in which the NSO had full responsibility for measurement and monitoring. Given that NSOs are specialized in the survey and analytical methods required to permit disaggregation, it might have been expected that countries where NSO were fully in charge of measurement and monitoring would face fewer challenges on this front. This does not seem to be the case, however. Again, a plausible explanation for this is the fact that no NSO can possibly compile all of the data required for measurement and monitoring. It is again worrying, though, since it is another indication that NSOs have difficulty obtaining the required data for measurement and monitoring from others. Countries in which the NSO has

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<sup>1</sup> See the Conference of European Statisticians' [Road Map on Statistics for Sustainable Development Goals](#).

<sup>2</sup> Full responsibility means that the NSO is responsible for all SDG measurement and monitoring in the country, using both its own data and data it obtains from other agencies.

full responsibility for measurement and monitoring must ensure the NSO has access to all data required to disaggregate statistics to reveal trends in specific sub-populations. This may require that additional effort be devoted to improving NSO access to administrative and non-traditional data sources and harmonizing definitions among data sources.

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## Acronyms

AQUASTAT - Water database of the United Nations Food and Agriculture Organization  
CD4.0 - Capacity Development 4.0 initiative of PARIS21  
CES - Conference of European Statisticians  
CES Road Map - CES Road Map on Statistics for Sustainable Development Goals  
CODE - Centre for Open Data Enterprise  
CSDA - Common Statistical Data Architecture  
ECE - Economic and Social Commission for Europe (of the United Nations)  
EPR - Environmental performance review  
ESCAP - Economic and Social Commission for Asia and the Pacific (of the United Nations)  
FAO - Food and Agriculture Organization (of the United Nations)  
FDES - Framework for the Development of Environmental Statistics  
FPOS - Fundamental Principles of Official Statistics  
GAMSO - Generic Activity Model for Statistical Organizations  
GSBPM - General Statistical Business Process Model  
GSIM - Generic Statistical Information Model  
HLG-MOS - High-Level Group for the Modernization of Official Statistics  
HLG-PCCB - High-level Group for Partnership, Coordination and Capacity-Building for statistics for the 2030 Agenda for Sustainable Development  
HLPF - High-level Political Forum  
IAEG-SDGs - Interagency and Expert Group on Sustainable Development Goal Indicators  
ISO - International Organization for Standardization  
NGO - Non-governmental organization  
NRP - National reporting platform  
NSDS - National Strategy for the Development of Statistics  
NSO - National statistical office  
NSS - National statistical system  
OECD - Organisation for Economic Co-operation and Development  
PARIS21 - Partnership in Statistics for Development in the 21<sup>st</sup> Century  
PPP - Public-private partnership  
PRTR - Pollution release and transfer register  
RIA - Rapid integrated assessment  
SDG - Sustainable Development Goal  
SDMX - Statistical data and metadata exchange  
SEEA-CF - System of Environmental-economic Accounting-Central Framework  
STI - Science, technology and innovation

UNCTAD - United Nations Conference on Trade and Development  
UNDP - United Nations Development Programme  
UNEP - United Nations Environment Programme  
UNESCO - United Nations Educational, Social and Cultural Organization  
UNICEF - United Nations Children's Fund  
UNSD - United Nations Statistics Division  
VNR - Voluntary national review  
WHO - World Health Organization

# 1 Introduction and methodology

Assessing progress towards achievement of the 2030 Agenda for Sustainable Development (2030 Agenda) and the associated Sustainable Development Goals (SDGs) is a complex, multi-faceted process involving actors at the sub-national, national, regional and global levels. Though complex, the process can be conceived of in broad terms as comprising two sets of activities, one objective and the other subjective. The objective activities – which are the focus of this report – include all those associated with the compilation and dissemination of the 232 individual indicators that have been chosen by the international community to measure the SDGs. The subjective activities include all those associated with the use of these indicators along with other information for the purpose of reviewing progress toward achieving the SDGs and explaining where progress is and is not being made. The objective activities related to compiling and disseminating the SDG indicators are commonly referred to as “measurement and monitoring” and the subjective activities related to reviewing progress is commonly referred to as “reporting”. Measurement and monitoring is largely the domain of official statisticians and other data providers, while reporting is largely the domain of departments or agencies with policy responsibilities.

At the global level, the most prominent example of SDG measurement and monitoring is the [SDG indicator database](#) maintained by the United Nations Statistics Division (UNSD) and the most prominent example of SDG reporting is the [annual progress report of the United Nations Secretary-General on the Sustainable Development Goals](#). The latter draws heavily upon the former to support its review of global progress. Examples of measurement, monitoring and reporting can also be found at the regional, national and even sub-national levels. At the national level, many countries have put in place SDG indicator databases similar to the global database. The national equivalent to the Secretary-General’s progress report is the voluntary national review (VNR), a formal review of national progress toward the SDGs compiled by national governments and submitted to the United Nations. At the local level, municipalities make efforts to produce voluntary local reviews.

Regionally, each of the five United Nations regional commissions is active in supporting its member States in assessing progress toward the SDGs. In its region, the United Nations Economic Commission for Europe (ECE) is supporting countries to address sustainable development challenges through an integrated, multisectoral approach that leverages ECE norms, standards and conventions. The challenges facing countries in the region cut across most SDGs. Environmental pressures, the need for economic development, growing urbanization and other issues demand more effective policies and broader societal dialogue, neither of which can take place in the absence of robust statistics.

In order to better support member States in achieving the SDGs, ECE has identified four areas where its programmes and expertise converge. These “nexus” areas are:

- [Sustainable use of natural resources](#)
- [Sustainable and smart cities for all ages](#)
- [Sustainable mobility and smart connectivity](#)
- [Measuring and monitoring progress towards the SDGs.](#)

This report has been prepared to support ECE efforts within the fourth nexus area, measuring and monitoring progress towards the SDGs. All countries face challenges in measurement and monitoring, whether in terms of finding suitable methodologies, the quality of underlying data, the management and sharing of information or the ability to report indicators with the desired degree of disaggregation. The focus of the report is on the challenges faced by countries in the ECE region with respect to:

- Defining the roles of National Statistical Offices (NSOs) in SDG measurement and monitoring and supporting NSOs in executing those roles
- Coordinating the activities of the myriad organizations involved in measurement and monitoring and ensuring collaboration among them
- Modernizing statistical processes and systems to better support measurement and monitoring
- Strengthening basic statistics and accounts for use in compiling SDG indicators
- Dissemination and communication of SDG statistics and indicators
- Securing adequate human and financial resources.

In each of the areas, the report identifies the nature of the challenges faced (Chapter 2) and the responses offered to the challenges (Chapter 3). The report emphasizes the responses offered by regional organizations (including, but not limited to, ECE) and by member State central governments. The global and sub-national responses cannot be overlooked, however, since measurement and monitoring extend beyond the activities of regional organizations and national governments. Thus, the report touches on all of these. The report concludes (Chapter 4) with recommendations regarding the ways in which ECE and other regional organizations can better support member States in overcoming their measurement and monitoring challenges.

## 1.1 Methodology

The report draws upon material from a variety of sources. On-line materials available from the United Nations and other global institutions, from ECE and other regional institutions and from member States were a primary source. The knowledge and experience of the ECE staff who comprise the measurement and monitoring nexus team was also instrumental in shaping the report and its conclusions. So too was the knowledge and experience of the report's primary author, Robert Smith of Midsummer Analytics, who has spent much of his three-decade career in official statistics focused on the question of measuring sustainability.

Of course, real insight into the challenges faced by individual member States can only be gleaned by asking them directly about their challenges and what they are doing to address them. For this reason, an electronic questionnaire was developed and sent to member States as part of the report research. The questionnaire was designed to gather general information about the challenges faced in countries and to allow them to provide specific details about these challenges and their responses to them where such details were relevant. Of the 56 member States in the region, 51 replied to the questionnaire.

## 2 Overview of the challenges in measuring and monitoring the Sustainable Development Goals

As noted in the United Nations Secretary-General's 2019 [report on progress towards the Sustainable Development Goals](#), high-quality statistics are vital for enabling governments, regional and global organizations, civil society, private sector and the general public to measure progress towards achievement of the SDGs. Moreover, the broad ambition of the 2030 Agenda creates the need for an unprecedented range of statistics at the sub-national, national, regional and global levels, including those derived from official statistical systems and from administrative and non-traditional data sources. The 232 indicators selected to measure the SDGs are varied, complex and, in many cases, methodologically underdeveloped. NSOs and the broader national statistical systems (NSS) they lead in many countries (see Box 1) face an urgent need to adapt and develop in order to rise to the challenge of SDG measurement and monitoring. Though there is a wide range of statistical capabilities across countries, with some countries facing greater challenges than others, all countries face at least some challenges in SDG measurement and monitoring. As a result, accurate and timely statistics about critical aspects of development remain missing, leaving certain groups (like women and the disadvantaged) less than fully visible to decision makers and many development challenges poorly understood. To address these shortcomings and improve the statistical basis for measurement and monitoring, new data sources and collection and treatment technologies must be explored. This cannot be done by NSOs alone, so vertical and horizontal partnerships with other members of NSSs, municipalities, civil society, the private sector and academia, are needed.

### *Box 1 – National statistical systems*

In many countries, there exists a formal national statistical system comprising all the departments and agencies of the central government with responsibilities for producing official statistics on behalf of the government. Where such systems exist, the national statistical office – as the agency mandated with production of the largest share of official statistics – is usually the lead agency of the NSS. In this role, the NSO:

- Defines standard concepts and methods for official statistics (for example, standard classifications of industries or methods for adjusting prices for inflation)
- Sets guidelines for the quality of official statistics in terms of, among others, timeliness, accuracy and accessibility (see below)
- Works to ensure coordination and collaboration among members of the NSS to, for example, avoid duplication of effort in data collection.<sup>3</sup>

In some instances – for example, in the United Kingdom of Great Britain and Northern Ireland – statisticians working outside of the NSO but within the NSS are formally part of a national statistical “service” (a professional body of statisticians with its own code of conduct and a separate employer from other civil servants). This ensures that all official statisticians, whether working within or outside of the NSO, adhere to the same set of professional guidelines, thus providing users of official statistics with near certainty that all official statistics are free from bias. In such cases, the statistical units that comprise the NSS are clearly defined and a high degree of coordination among them can be expected.

In other instances, the structure and functioning of the NSS is looser, with the NSO working to ensure coordination and collaboration among statisticians in other departments or agencies but those agencies having greater control over the statistics they produce.

In some countries – for example, Canada – the concept of the national statistical system does not apply in any formal sense and the NSO plays little or no role in coordinating the activities of other statistical units, which largely define their own concepts and methods and set their own guidelines.

<sup>3</sup> As discussed below in Section 3.1.1, NSOs adhere to the Fundamental Principles of Official Statistics in carrying out this role.

Given their importance in informing decision-making, official statistics must be of the highest quality possible. For this reason, the global statistical community has agreed upon a [quality assurance framework for official statistics](#), with an entire chapter devoted to quality assurance of data and statistics on the SDG indicators. The dimensions of statistical quality are widely agreed to be:<sup>4</sup>

- **Relevance:** the degree to which statistics meets the needs of users and stakeholders, which requires ensuring that statistical programmes remain aligned with information needs as they evolve and retaining the flexibility to respond to them
- **Accuracy and reliability:** the degree to which statistics correctly describe the phenomena they are intended to measure, which is usually quantified by the evaluation of different sources of error (coverage, non-response, measurement and processing)
- **Timeliness and punctuality:** the length of time between the end of the reference period (or the reference date) to which data relate and the date they are made publicly available (timeliness) and to the difference between planned and actual availability (punctuality)
- **Accessibility and clarity:** the ease with which users are able to identify, obtain and use statistical products and services (accessibility) and the degree to which metadata and other information are provided so that users are able to locate and select products or services that correspond to their needs (clarity)
- **Coherence and comparability:** the extent to which statistics are logically consistent in terms of definition and measurement and thus can be reliably combined in different ways and for various uses (coherence) and the extent to which differences over time or among sources can be attributed to changes in the true values of the statistics and not to changes in definition or measurement (comparability).

Adherence to these quality dimensions is one of things that sets official statistics apart from many of sources of data, not all of which are collected with a clear quality framework in mind. Other features of official statistics that make them well suited for use in SDG measurement and monitoring include their multi-purpose nature (collected once but used many times), their objectivity (NSOs and NSSs are generally located outside of policy departments or, when inside such departments, protected from undue influence by statistical legislation guaranteeing their independence) and their public trust.

A landmark report outlining the challenges in SDG measurement and monitoring was published in 2014. Titled [A World that Counts](#), it was prepared by an Independent Expert Advisory Group commissioned by the United Nations Secretary-General to consider the implications for measurement and monitoring of the on-going “data revolution” driven by new information-generating technologies. The world today is one in which data are bigger, faster and more detailed than ever before. The Group identified two main challenges for measurement and monitoring. First, there are simply not enough high-quality statistics available. Second, many statistics are either not used or not usable.

To address these challenges, the International Expert Advisory Group provided the Secretary-General with recommendations in four areas:

- **Principles and standards for sustainable development statistics:** agree on and promote specific principles regarding data quality, management, governance and rights (see Box 2)<sup>5</sup> and legal, technical, geospatial and other standards
- **Technology, innovation and analysis:** leverage new data sources, develop systems for global data sharing and identify and fill research gaps
- **Capacity and resources:** develop new funding streams for SDG statistics and a proposal for developing statistical capacity

<sup>4</sup> See, for example, the quality assurance frameworks of [Statistics Canada](#), the [European Union](#), the [International Monetary Fund](#) and the [OECD](#).

<sup>5</sup> These principles are based on and coherent with the United Nations *Fundamental Principles of Statistics* and *Principles Governing International Statistical Activities* (see Section 3.1.1).

- **Governance and leadership:** create a global partnership for sustainable development statistics, including a World Forum on Sustainable Development Data.

*Box 2 – The Independent Expert Advisory Group’s principles for statistics for sustainable development*

The Independent Expert Advisory Group set out nine principles to guide the improvement of statistics for sustainable development.

- Focus on **quality and integrity** of statistics through establishment of clear standards and a robust quality assurance framework.
- Ensure that all members of society are visible in statistics through appropriate **disaggregation** of statistics across, among others, geography, wealth, disability, age, ethnicity, migrant status, marital status, HIV status, sexual orientation and gender identity.
- Provide statistics on a **timely basis**.
- Ensure **transparency and openness** in statistics, making all official statistics open by default except where genuine security or privacy concerns exist. Open means both technologically and legally accessible.
- Ensure the **usability and curation** of statistics by creating user-friendly interfaces.
- Protect **privacy** through application of norms governing the use of statistics and enabling citizens to better understand and control their own information.
- Enable sufficient **resources and capacity** so that all countries may have an effective NSS capable of producing high-quality statistics in line with global standards and expectations.
- Support improved **governance and independence** in NSSs by strengthening NSOs and ensuring they are autonomous, independent of sectoral ministries and political influence.
- Enforce individual **rights** with regard to statistics, including the right to be counted, the right to an identity, the right to privacy and the right to ownership of personal data.

Following publication of *A World that Counts*, the global community acted on a number of the Group’s recommendations. The specific actions taken are spelled out more fully in Chapter 3. One of them deserves particular mention in this overview chapter, though, since it laid out a clear agenda for addressing the needs of NSOs and NSSs in meeting the challenges of SDG measurement and monitoring. This is the [Global Action Plan for Sustainable Development Data](#) agreed in Cape Town in 2017 at the first meeting of the High-level Group for Partnership, Coordination and Capacity-Building for Statistics for the 2030 Agenda for Sustainable Development. The Cape Town Global Action Plan identified the six challenges mentioned in Chapter 1 as the focus of this report. They are repeated below for convenience:

- Defining the roles of NSOs in SDG measurement and monitoring and supporting NSOs in executing their roles
- Coordinating the activities of the myriad organizations involved in measurement and monitoring and ensuring collaboration among them
- Modernizing statistical processes and systems to better support measurement and monitoring
- Strengthening basic statistics and accounts for use in compiling SDG indicators
- Dissemination and communication of SDG statistics and indicators
- Securing adequate human and financial resources.<sup>6</sup>

Each of these challenges is discussed further in general terms in the remainder of this chapter. The global, regional and national responses to them are the subject of Chapter 3.

<sup>6</sup> It is worth noting that these challenges correlate well with the seven dimensions of statistical capabilities set out in the ECE [Statistical Capacity Development Strategy](#).



## 2.1 Defining and supporting the role of National Statistical Offices

The 2030 Agenda clearly recognizes that global measurement and monitoring “will be primarily based on national official data sources.”<sup>7</sup> As the primary producers of official statistics in every country, most of the statistics required for measurement and monitoring therefore come from NSOs. Even in cases where the statistics come from other members of the NSS, the NSO – as lead agency in the NSS – has an indirect role to play in ensuring the success of measurement and monitoring. A challenge for every country, then, is ensuring that the role played by the NSO in SDG measurement and monitoring is both clearly defined and broadly understood by all national stakeholders. In broad terms, three possibilities exist for this role.

- **Full responsibility:** The NSO may be responsible for all SDG measurement and monitoring activities, meaning it compiles all SDG indicators for the country, disseminates these indicators to the public and reports them officially on behalf of the government to regional and global bodies. In compiling the indicators, the NSO may draw upon its own statistics, other official statistics produced by the NSS and non-official statistics produced by other stakeholders as necessary.
- **Partial responsibility:** The NSO may be responsible for some but not all SDG measurement and monitoring activities. It may compile and disseminate only those SDG indicators that rely exclusively on data from the NSO itself, leaving compilation and dissemination of other indicators to the departments and agencies that produce the relevant data.
- **No particular responsibility:** It may be the case that the NSO has no particular role in SDG measurement and monitoring, with other departments and agencies assuming responsibility for compilation and dissemination of all SDG indicators. In such a case, the NSO may play the limited role of simply providing its statistics as required to the organizations responsible for indicator compilation.<sup>8</sup>

Which role the NSO plays is, of course, a matter for each country to decide on its own. Whatever the role, though, it should be clearly defined and communicated to all stakeholders involved in measurement and monitoring and should derive, ideally, from a legal mandate. The legal mandate may arise implicitly from the general mandate given to the NSO in the national statistical law to produce official statistics. Or it may arise explicitly from a mandate for measurement and monitoring given to the NSO in a national law or policy related to sustainable development in general or to the SDGs in particular. In the absence of a clearly defined and legally mandated role for the NSO, confusion is likely to reign in the national SDG reporting system given the central role the NSO plays in providing official statistics in every country.

No matter the role assumed by the NSO in a given country, the NSO is likely to require enhanced capabilities to deliver it. As noted already, the statistical demands created by the SDGs are unprecedented in breadth and depth and many NSOs (and NSSs) are simply not equipped to provide statistics of that scope with the necessary quality in terms of timeliness, accessibility and accuracy. Moreover, NSOs and NSSs are not keeping up with the private sector in all countries in the race to offer new statistics. Companies are increasingly developing the capacity to collect, analyse and respond to real-time data as quickly as it is generated. Rising to the challenge of measurement and monitoring therefore requires NSOs and other organizations and individuals within the NSS to build, maintain and strengthen

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<sup>7</sup> See paragraph 74(a) of [Transforming Our World: The 2030 Agenda for Sustainable Development](#).

<sup>8</sup> For further discussion of possible roles NSOs can play, see the ECE report [National Mechanisms for Providing Data On Global SDG Indicators](#).



their abilities to collect, produce, analyse and disseminate high-quality and reliable statistics. Among many others, areas in which increased capabilities are required include:

- Collection of data in non-traditional domains, such as vulnerability of populations to climate change
- Treatment of data from non-traditional sources, including so-called “big data”
- Methods for filling gaps in data series
- Management processes
- Dissemination and communications.

## 2.2 Coordination and collaboration

As noted in *A World that Counts*,<sup>9</sup> NSOs cannot take on the challenge of measurement and monitoring alone. New institutions, new actors, new ideas and new partnerships are needed. NSOs, as the traditional suppliers of official statistics, remain central to the measurement and monitoring effort, as already noted. To play their role effectively, however, they need to adopt new data sources and production processes more widely and quickly than in the past. Using more administrative data from other government departments,<sup>10</sup> incorporating geospatial data and speeding up production so that the “data cycle” matches the “decision cycle” is key to success. This requires, among other things, vastly improved coordination and collaboration<sup>11</sup> both within the NSS and between the NSS and organizations outside government involved in collecting and using data. The list of stakeholders that must coordinate and collaborate includes:

- NSOs
- Other members of the NSS
- Other national government departments and agencies involved in the production of data
- National government departments and agencies that are users (rather than producers) of official statistics
- Sub-national government departments and agencies, especially municipalities
- Civil society organizations
- Academic and research organizations
- Businesses
- Households.

All of the above stakeholders have a role to play in SDG measurement and monitoring, either as providers of basic data or statistics, as compilers or disseminators of indicators or as users of data, statistics or indicators. Coordination of their activities is needed to ensure that measurement and monitoring is efficient, effective and transparent.

In countries where a formal and effective NSS exists, a natural choice is to mandate the NSS to undertake measurement and monitoring with the NSO as the lead agency. There should exist within the NSS ready-made coordination mechanisms – for example, a national statistical steering committee – that can simply be applied to the compilation and dissemination of SDG indicators. There may also exist within the NSS collaborative activities – for example, joint working groups on statistical methodologies – that can be similarly applied to measurement and monitoring. Coordination and collaboration within NSSs are

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<sup>9</sup> See page 9.

<sup>10</sup> See Section 2.4 for a definition of administrative data.

<sup>11</sup> *Coordination* involves arranging the activities of different stakeholders such that they are mutually supportive; for example, dividing tasks among stakeholders to avoid duplication of effort and increase efficiency. *Collaboration* involves joint effort on specific tasks through the sharing of human and/or financial resources; for example, joint production of report or an indicator. Coordination does not necessarily require collaboration, but collaboration cannot occur in the absence of coordination.

likely to be greatest in countries where the NSS is highly formalized. Even in instances where the NSS is more loosely organized there should exist a degree of coordination and collaboration to build upon in SDG measurement and monitoring. Where no formal NSS exists, it may be the case that coordination and collaboration mechanisms are less evident (though this is not necessarily the case, as the existence of an NSS is certainly not a necessary condition for coordination and collaboration).

Though it may be natural to assign responsibility for SDG measurement and monitoring to the NSS in cases where it exists, this may not necessarily be the choice made in a given country. The government may choose another department or agency to lead the process; for example, a department for sustainable development or a central agency such as the prime minister's office. In such cases, there may or may not exist coordination and collaboration mechanisms.

Whichever department or agency (or group) is chosen to lead SDG measurement and monitoring, it is likely that coordination and collaboration need to be improved if measurement and monitoring is to be as efficient, effective and transparent as possible. This is so for several reasons. First, coordination and collaboration are complex undertakings and rarely perfect, even in instances where governments take them seriously and practice them widely. Second, the SDGs cover a remarkably broad set of issues that touch upon the mandates and activities of an equally broad set of organizations. It is likely that many of these organizations have not worked together previously (for example, social development and environmental agencies) and, therefore, that no relevant coordination and collaboration mechanisms apply. Third, few governments are likely to collect all the data and statistics required for measurement and monitoring (again, due to the breadth of the SDGs), meaning that non-governmental sources may have to be drawn upon for some needs. Existing intra-governmental coordination and collaboration mechanisms do not cover such sources.

For all these reasons, coordination and collaboration mechanisms present a challenge for SDG measurement and monitoring.

## 2.3 Modernizing statistical processes and systems

The need for “modernization” of statistical processes and systems is increasingly recognized. The challenges of measurement and monitoring of SDGs at the national and local levels only amplify this need. The SDGs are not just calling for more statistics than ever before, they are calling for them in under-developed domains (like environmental and gender statistics) and on topics that fall outside the traditional scope of official statistics (like material footprints). If the need for statistical modernization was clear before the advent of the SDGs, today it can only be understood as an imperative. No country can afford to rely any longer on the *status quo*.

Modernization can be broadly defined as: (i) ensuring the use of standard statistical production processes and tools between national, regional and global statistical systems; (ii) enabling international comparison and exchange of statistics; and (iii) integrating non-traditional data sources into official statistics to deliver them in a more timely and cost-efficient way. Though modernization efforts have been underway in some countries for at least a decade, official statistics today continue to rest largely on the basis of methods and workflows that have existed for many decades. These include, among others:

- The use of large sample surveys or censuses of target populations to collect basic data
- Dissemination of statistics via periodic news releases, standardized reports and data tables
- A focus on a limited set of statistics defined by economic, demographic and social policy frameworks
- Use of data processing systems that are often outdated and poorly documented

- Human resource management that values depth of subject-matter expertise over flexibility of skill sets
- A preference for statistical quality over timeliness
- Standardized concepts and methods that change slowly
- A risk-adverse approach to data dissemination that privileges individuals' rights to privacy over collective rights to data access.

While these approaches have served the official statistics community well over many years, the information deluge created by the revolution in data creation, collection and sharing technologies threatens the *status quo* (by allowing many non-traditional actors to enter the world of data provision) and provides a strong impetus for NSSs to increase their efficiency through modernization.

## 2.4 Strengthening basic official statistics

The breadth of the SDGs means that high-quality statistics are required across a wide range of topics. As noted already, not all of them fall within the traditional areas of strength of NSOs. In particular, a number of the SDGs address environmental issues, which are not dealt with at all by many NSOs and, at best, are dealt with as a side-line to the much larger efforts devoted to measuring economic, social and demographic statistics.<sup>12</sup> Strengthening environmental statistics is, then, of particular importance to the success of measurement and monitoring. Environmental sustainability is crucial to the overall sustainability of development and basic official statistics must be improved to reflect this. This is an area where improved coordination and collaboration across the NSS is likely to pay dividends, since environmental data and statistics are often collected by environmental departments and agencies.

Household statistics is another area where the SDGs create new and challenging demands. Many of the indicators touch upon the conditions of households and do so in a way that requires a level of disaggregation that goes beyond what is common today in official statistics. SDG Indicator 10.2.1, for example, calls for a measure of the proportion of persons with disabilities living below 50 per cent of median income. Producing such an indicator requires either a survey of income that includes questions about disabilities (which most do not today) or a complex linkage between income and disability survey microdata.

A challenge with respect to household statistics in many countries is that the surveys used for their collection are sometimes conducted by global organizations rather than by NSOs. For example, the [Multiple Indicator Cluster Survey conducted by the United Nations Children's Fund](#) (UNICEF) is an important source of data on women and children in many countries in the ECE region and the World Health Organization (WHO)/UNICEF [Joint Monitoring Programme for Water Supply, Sanitation and Hygiene](#) is an important source of data on water and hygiene. While these surveys are valuable sources of important data, reliance on national sources is always preferred, as they are more likely to take unique national characteristics into account, to be trusted by national users and to build national statistical capacity.

Official statistics rely not just on data collected through surveys, but also on the use of administrative data collected by governments for non-statistical purposes; for example, income tax filings used as a source of basic income statistics. Use of administrative data has a number of advantages: there is no increase in response burden or collection cost, since the data are collected in any case; data are put to multiple uses, increasing overall governmental efficiency; the data can be very detailed (a tax filing is made by every employed person, for example); and the data can be counted on to remain available so long

<sup>12</sup> As an illustration of the effort devoted to environmental statistics, Statistics Canada – which has one of the strongest environmental statistics programs of any NSO – devotes only a few dozen of its several-thousand-person-strong workforce to the topic.

as the programme that generates them remains. Increased use of administrative data is, then, an attractive option as a means of meeting the challenges of SDG measurement and monitoring. Increasing its use means overcoming some well-known obstacles, including:

- Reluctance on the part of the agencies that collect the data to share them
- Concerns regarding the privacy and rights of the individuals who provided the data<sup>13</sup>
- Building new systems to process the data
- Adapting the data for statistical purposes (for example, by reclassifying them to match standard classifications).

Meeting the challenges of SDG measurement and monitoring may require governments even to look beyond their own data and make use of data collected by extra-governmental organizations. The unprecedented scope of the SDGs means that even nations with highly developed and well-funded statistical systems find it challenging to identify data sources within their own governments. For example, Indicator 8.3.1 on the proportion of informal employment outside of agriculture may not be collected in government labour market statistics but may be monitored by non-governmental organizations (NGOs) focused on alleviating poverty or on justice for workers. When looking for data from outside government, countries can look to national or sub-national organizations operating within their borders or to regional and global organizations. Using data from non-official sources comes with its own challenges, however, since data quality may be inadequate for the purposes of official statistics and the data source may not be reliable in the future. Nonetheless, some argue<sup>14</sup> the time has come not just to use non-official data as an input into compilation of official statistics, but to consider them as direct stand-ins for unavailable official statistics in cases where their quality can be ascertained and certified by NSOs. Given the pace of progress, the cost of developing the SDG indicators and the weight of expectations, ways must be found to collaboratively harness the intellectual power of those outside NSSs.

## 2.5 Dissemination and communication

Given the highly public and political nature of the SDGs, effective indicator dissemination and communication<sup>15</sup> are an essential element in successful measurement and monitoring. Failure to provide users with ready access to the indicators and clear documentation of their strengths and weaknesses risks bringing accusations of bias on the part of NSOs and/or the NSS. Moreover, regional and global organizations have created their own dissemination and communication platforms and approaches with which national governments have to align to the greatest extent possible. This constrains the range of options available to governments and also sets expectations in terms of the quality and nature of dissemination and communication.

Transparency in dissemination and communications is essential for all official statistics and this is certainly true for SDG indicators. The indicators are scrutinized at many levels by many stakeholders. The goal of the NSO or NSS must be to provide users with access to the indicators and sufficient information about them to eliminate any reasonable possibility

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<sup>13</sup> Individuals who provide data to governments have a right to know how and to what end their data will be used. Integration of administrative data into the production of statistics could be considered a mis-use if done without an explicit and transparent legal basis and without the consent, whether explicit or implicit, of the individuals to whom the data belong.

<sup>14</sup> See, for example, [the proposal by UNCTAD to use unofficial statistics for SDG indicator compilation](#); the [Dubai Declaration](#) on the mobilization of funding for measurement and monitoring and [brief by ESCAP on SDG implementation](#).

<sup>15</sup> In the context of measurement and monitoring, *dissemination* is the process of making SDG indicators available to users in electronic form through, for example, an on-line database. Provision of basic meta-data describing the concepts, methods and data sources underlying the indicators is considered part of dissemination. *Communication* is the process of providing users with additional information they require in order to properly understand and use the indicators.

that a given user would suspect them to be biased in any way. In this way, the debate about the indicators can rest where it should – on the success or failure of policy efforts to achieve the SDGs – and not on the credibility of the indicators themselves.

Achieving transparency requires that indicator dissemination platforms – be they sophisticated, searchable on-line platforms such as that created by the United Nations or simpler approaches based on downloadable spreadsheets – be readily accessible by any interested user. In today's world, this requires some form of basic electronic dissemination (spreadsheets, for example) at a minimum. In countries where Internet access is not yet universal, electronic dissemination should be accompanied by paper-based reports that can be distributed by regular mail service.

To ensure timely and efficient dissemination, countries ideally rely upon a standard data exchange format. This enables the automation of data exchange between countries and regional or global organizations while simplifying and improving data validation and dissemination. In practice, this implies adoption of the existing Statistical Data and Metadata Exchange (SDMX) format, which is an [ISO standard](#) endorsed by global organizations, including the United Nations Statistical Commission. It is used successfully for data exchange and dissemination in areas such as macro-economic statistics and international trade and was used to a limited extent in the context of the measurement and monitoring for the Millennium Development Goals. Its use in the context of SDG measurement and monitoring remains limited. Although [standard formats](#) for SDG indicators were released in 2019 and the United Nations has established an [SDMX working group](#), most countries and global organizations have yet to adopt SDMX for SDG data transmission.

Another issue with respect to dissemination is the need to provide users with access to the micro-data underlying the indicators. As such micro-data are normally confidential, providing access can only be done under carefully controlled circumstances that ensure respect for respondents' privacy.

Transparency is also essential in communications related to the indicators. Beyond having access to the indicators themselves and to the related metadata, users require additional information to help them understand and use the indicators. For example, information is needed on the processes used in compiling the indicators (what organizations were involved and what roles each played); the reasons why some indicators cannot be compiled according to the approved global methodology (or not compiled at all); and what is being done to improve national capacity to compile the indicators. Such information must be communicated in a clear and accessible manner, ideally in the form of a report disseminated along with the indicators themselves. Any communications in the context of measurement and monitoring must be clearly separated from other communications related to the SDGs – for example, from VNRs – and must be strictly objective and factual in nature. A measurement and monitoring report could be published, for example, as a companion document to a VNR and users wishing to know more about how the indicators had been compiled and what improvements might be possible in the future could be pointed to it.

## 2.6 Financial and human resources

Financial and human resource needs must be considered in any activity and SDG measurement and monitoring is no exception. As with the other issues discussed above, the breadth of the SDGs presents challenges in this area as well.

From a human resource perspective, challenges present themselves in terms of both identifying the necessary resources and managing them. Resources are needed across several domains: subject-matter experts (for example, health and environmental statisticians); experts in statistical methods; information technology experts; dissemination and communication experts; and project management specialists. Managing these resources, once identified, presents unique challenges. Even within NSOs, it is not common



for subject-matter experts from different domains to work together on measurement and monitoring, as dissemination and communication of statistics remains largely subject-matter specific. This is all the more true across different departments and agencies. Bringing people together to work on measurement and monitoring, then, likely means creating a functioning team from individuals who are not accustomed to working with one another. In practice, success in such circumstances normally requires a mandate from and active engagement of senior managers, as only they have the authority to create inter-organizational teams.

While objective measurement and monitoring activities must be kept separate from subjective reporting activities, it is important nonetheless that there be interaction between the two groups. Those working on measurement and monitoring need to be certain that their activities in support of dissemination and communication of the indicators support and complement what their colleagues are doing in terms of reporting. It could be disastrous, for example, if the measurement and monitoring team was launching a new on-line dissemination platform at the same time as the reporting team was publishing the latest VNR if that led to high demand for access to the new platform and caused it to crash.

In terms of financial resources, measurement and monitoring in relation to the 2030 Agenda presents the obvious challenge of being a new, potentially expensive and additional activity for governments to fund over and above their current statistical activities. In a world in which statistical budgets are more often shrinking than expanding, it is not clear that this measurement and monitoring always receives the funding required. This is particularly the case for indicators that require significant disaggregation of statistics. The basic data required to permit such disaggregation may not exist in many cases and collecting it is, as with all statistical activities, an expensive undertaking.

Another challenge that the breadth of the SDGs presents for human and financial resources is the potential need to share resources across departments and agencies. Since the indicators cross subject-matter boundaries, it is unlikely that any one organization steps up to pay the cost of measurement and monitoring on its own. Given this, measurement and monitoring activities have to be funded either by sharing of existing organizational budgets or by allocation of new funding from central government agencies. Either approach presents challenges in terms of agreeing on the share of budget to be allocated to and, where new funding is not available, drawn from existing budgets. All of this is made more complicated by the potential for extra-governmental organizations (for example, NGOs or universities) to be involved in measurement and monitoring.

One possibility for meeting financing needs for measurement and monitoring is to look beyond governments to private donors as sources of funds. This requires the creation of innovative financing mechanisms and can raise questions of the impartiality of measurement and monitoring activities. To avoid this, any such mechanisms has to be consistent with the principle that decisions related to the collection, processing, dissemination and communication of official statistics must be made entirely on the basis of professional considerations by the NSO and/or NSS.<sup>16</sup>

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<sup>16</sup> See Principle 2 of the United Nations *Fundamental Principles of Official Statistics*.

## 3 Meeting the measuring and monitoring challenge

The measures taken in response by global organizations to the challenges of SDG measurement and monitoring are outlined below for global organizations (Section 3.1), regional organizations (Section 3.2) and national governments and organizations (Section 3.3)

### 3.1 Global responses

#### 3.1.1 Overview of global initiatives relevant to measurement and monitoring

Two major bodies have been created at the global level to support SDG measurement and monitoring. The more significant of these is the [High-level Group for Partnership, Coordination and Capacity-Building for statistics for the 2030 Agenda for Sustainable Development](#) (HLG-PCCB), established to:

- Create a global action plan for SDG measurement and monitoring
- Provide strategic leadership for SDG measurement and monitoring
- Foster statistical capacity-building
- Ensure consistency between national and global measurement and monitoring
- Support efforts to modernize statistical systems
- Promote interaction between statistical systems and other stakeholders within and outside government.

The primary activity of the HLC-PCCB is organizing the [United Nations World Data Forum](#), a biennial gathering of the world's statistical community – including information technologists, geospatial information managers and data scientists – to discuss means of overcoming the challenges of SDG measurement and monitoring. Two such forums for have been held to date, one in Cape Town in 2017 and the second in Dubai, United Arab Emirates, in 2018. The 2017 forum was notable for resulting in the [Cape Town Global Action Plan for Sustainable Development Data](#) and leading to the associated [Dubai Declaration](#) on the mobilization of funding for measurement and monitoring, signed at the 2018 forum. The forum is next planned for October 2020.

The other major global body focused on issues related to measurement and monitoring is the [Interagency and Expert Group on Sustainable Development Goal Indicators](#) (IAEG-SDGs) established by the United Nations Statistical Commission in 2015 with the primary objective of developing and implementing the [global indicator framework](#) for the 2030 Agenda. In addition to its mandate to develop the SDG indicators, the IAEG-SDGs is charged with:

- Providing technical support for the implementation of the indicators, ensuring the use of agreed definitions and sharing experiences
- Reviewing statistical capacity-building needs and activities
- Supporting the development of an SDG data-user forum, tools for data analysis and an SDG dashboard.

The group comprises representatives from NSOs, United Nations regional commissions and regional and international agencies. It works in an open manner, inviting individual experts, as appropriate, from civil society, academia and the private sector to contribute their expertise. The group is supported by three working groups:

- A [working group on geospatial information](#), focused on how geospatial, earth-observation and other new data sources can be used in measurement and monitoring

- A [working group on integrated analysis](#), focused on identifying interlinkages between the economic, social and environmental dimensions of the SDGs and promoting integrated analysis of these dimensions by NSOs and NSSs
- A [working group on data flows](#), focused on developing and promoting a statistical data and metadata exchange standard for sharing SDG statistics between countries and regional and global organizations.

Beyond these two major bodies, the global community has responded to the measurement and monitoring challenge in a variety of other ways. For example:

- UNSD maintains a [global database and metadata repository for the SDG indicators](#) that provide the ultimate “home” for the indicators and related metadata for each United Nations Member State. Countries can look to these as best practices in designing their own indicator and metadata dissemination platforms.
- UNSD has also created the [SDG data lab](#), an online platform to facilitate the exchange of data and metadata by countries and custodian agencies with UNSD that will gradually replace all other forms of data submission from custodian agencies and countries to the global SDG indicator data base
- The IAEG-SDGs has identified various global and regional organizations as [custodian agencies](#) for the SDG indicators. Custodians are mandated to ensure the comparability of country data by ensuring use of international standards and strengthening national statistical capacities.
- [UN-Women supports monitoring of SDG 5](#) on gender equality, supporting the production of gender-based statistics and sex-disaggregated data across the SDG indicator framework.
- The [Office of the High Commissioner for Human Rights](#) advocates for a human rights-based approach to the production of SDG data, providing recommendations on data disaggregation to support the “leave no one behind” principle of the 2030 Agenda.
- The [Global Partnership for Sustainable Development Data](#) is a platform that brings together governments, the private sector, civil society and international development agencies to address the need for multi-stakeholder collaboration and mobilization of resources for measurement and monitoring.

In addition to the above initiatives, which are just a few among the dozens that could be mentioned as providing direct support to SDG measurement and monitoring, the global community promotes a wide variety of activities, policies and guidelines that can indirectly support measurement and monitoring. One of these is the United Nations **Fundamental Principles of Official Statistics** (FPOS) adopted by the United Nations General Assembly in 2014, reflecting the fundamental importance of official statistics for global development.<sup>17</sup> Through the FPOS, governments and their national statistical agencies pledge to compile official statistics that meet the test of practical utility and make them available on an impartial basis to honour all citizens’ entitlement to public information. To support application of the FPOS, the United Nations also promotes a set of [Principles Governing International Statistical Activities](#).

Turning the ambition of the SDGs into reality requires robust data to capture progress and evidence to inform decision-making. The Organisation for Economic Co-operation and Development ([OECD](#)) is helping countries track progress in areas such as trust, health inequalities, green growth, income and consumption inequality and job quality. It supports countries in developing and using environmental and green growth indicators and in achieving environment-economy integration over time. An innovative approach it has taken in this work is found in its report on [Measuring Distance to the SDG Targets](#), which aims to

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<sup>17</sup> The FPOS were first adopted by the ECE Conference of European Statisticians in 1992 and then by the United Nations Statistical Commission in 1994.



assist OECD member countries with their national implementation, measurement and data prioritization for the 2030 Agenda. The report uses a unique methodology to assess the distance countries need to travel to meet the SDG targets. It draws on the IAEG-SDGs global indicator list and uses publicly available data from OECD and United Nations SDG Databases. Based on the data available in early 2019, the report covered 105 of the 169 targets. On average, OECD countries are closest to reaching targets on goals relating to Energy, Cities and Climate, and furthest from Gender Equality, Reducing Inequality, Food and Institutions. However, the analysis also highlights important data gaps, which if addressed could change these results significantly: goals on Oceans, Sustainable Production, Cities and Reducing Inequality have 40 per cent or fewer targets covered. Health, Infrastructure and Education have the best data coverage, with 90 per cent or more targets captured by at least one indicator. In the spirit of leaving no one behind, OECD has extended the approach to assess the distance to the SDG targets for [children and young people](#). An analysis of distance to the SDG targets by gender is also underway.

Having provided this brief – and incomplete – overview of global initiatives relative to SDG measurement and monitoring, it is possible to discuss the roles global organizations play more specifically in terms of the specific challenges that are the focus of this report.

### 3.1.2 Defining and supporting the role of National Statistical Offices – Global responses

The global community recognizes that NSOs and the NSSs they lead have the overall ownership and primary responsibility for SDG measurement and monitoring at the national level. In both the 2015 resolution adopting the 2030 Agenda<sup>18</sup> and the subsequent 2017 resolution adopting the global SDG indicator framework,<sup>19</sup> the United Nations General Assembly recognized that measurement and monitoring would be primarily based on data produced by NSSs. The United Nations' acknowledgement that measurement and monitoring would be a process largely driven by NSOs is perhaps clearest though in the decisions to establish the two global groups comprising heads of NSOs mentioned above – the IAEG-SDGs and the HLG-PCCB – and mandate them to define the SDG indicator framework and ensure NSOs receive the support they require to implement it.

The United Nations also recognizes that NSOs face challenges in playing an effective role in measurement and monitoring. Statistics on specific subjects, such as health, education, energy, transport and the environment, may be compiled by line ministries or specialized agencies. In some cases, these organizations are part of the formal NSS and in others not. Often, they serve as the point-of-contact for regional and global organizations in need of statistics rather than the NSO, making it harder for the NSO to ensure the overall quality and transparency of the measurement and monitoring process. Increasingly, it may be the case that government statistics will be overlooked entirely, as private data providers become more and more active and capable in providing statistics. For these reasons, it is important for countries and regional and global organizations to recognize and support the neutrality of NSOs and their honest-broker role as key elements in effective measurement and monitoring. In this regard, the United Nations General Assembly has clearly stated that the FPOS are to be respected in measurement and monitoring.<sup>20</sup>

Among their other roles, NSOs should ensure that appropriate guidelines are in place to assure the quality of statistics used for measurement and monitoring. Playing this role – difficult at the best of times – is more difficult where the NSS is very diverse or operates without effective NSO leadership. This is why the coordination role of the NSO within the NSS is so important and in need of support from regional and global organizations. To

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<sup>18</sup> See [General Assembly resolution A/RES/70/1, paragraph 74\(a\)](#).

<sup>19</sup> See [General Assembly resolution A/RES/71/313, paragraph 7](#).

<sup>20</sup> See [General Assembly Resolution A/RES/71/313, paragraph 8](#).

support NSOs in this important role, the United Nations has published the [National Quality Assurance Frameworks Manual for Official Statistics](#) with a specific chapter devoted to quality assurance in the context of the SDG indicators. The framework touches upon quality across four dimensions of official statistics:

- **Management of the statistical system**, including coordination across and beyond the NSS and standards setting
- **Managing the institutional environment**, including assuring NSO independence, impartiality and adherence with other dimensions of the FPOS
- **Management of statistical processes**, including methodologies and response burden
- **Management of statistical outputs**, including their relevance, accuracy, timeliness, accessibility and coherence.

Global organizations also recognize the need to provide capacity-building support to NSOs and NSSs. This is particularly critical for developing countries, many of which lack the capacity to produce basic statistics even in traditional economic, demographic and social domains. Their capacity deficits are all the more apparent when it comes to harnessing the opportunities offered by the data revolution and producing the broad-scope, disaggregated data needed for SDG measurement and monitoring. The SDGs themselves are explicit in recognizing this deficiency. Target 17.18 refers to the need to build the statistical capacity of developing countries to produce timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other relevant characteristics.

A particularly significant element of the global community's response to the need to develop the capacity of NSOs was the creation of the Cape Town Global Action Plan on capacity-building for sustainable development data and the associated Dubai Declaration on financing (see Section 3.1.1). These initiatives can be seen as direct responses to the call in the 2030 Agenda<sup>21</sup> to increase statistical capacity-building. The Cape Town Global Action Plan is intended to provide a framework for discussion, planning and implementation of statistical capacity-building necessary to achieve the scope and intent of the 2030 Agenda. The plan acknowledges that capacity-building must be designed to meet countries' expressed needs and that regional and national statistical organizations should develop complementary action plans, including focused plans to address needs related to statistics for specific sectors.

Another global response to capacity-building is the [data ecosystem mapping project](#) of the United Nations Development Programme (UNDP), which has been applied in six countries (see Box 3 for a case study on the Republic of Moldova).<sup>22</sup> The project assessed the readiness of national data ecosystems to harness the data revolution for SDG measurement and monitoring. It focused on legal and policy frameworks; capacities; obstacles to stakeholder engagement; approaches to filling data gaps; and infrastructure needs related to the collection, dissemination and use of statistics. Key recommendations from the project included opening up NSSs to non-official stakeholders and innovative data approaches; providing incentives for government institutions to share administrative data; paying increased attention to information technologies; coordinating donors' assistance; and strengthening collaborative partnerships.

### *Box 3 – The Republic of Moldova and the data ecosystem mapping project*

The Republic of Moldova carried out a desk review, identified stakeholders and organized five workshops as part of the data ecosystem mapping project. An initial review found that 211 of the SDG indicators are relevant for the country. Data for half of these are unavailable and only partially

<sup>21</sup> Paragraph 57.

<sup>22</sup> Bangladesh, Mongolia, Republic of Moldova, Senegal, Swaziland and Trinidad and Tobago.

available for another 17 percent. The review determined that the Republic of Moldova faces challenges related to:

- Inconsistent methodologies, multiple data sources and weak statistical capacity
- Disaggregation of data
- Data gaps related to environment, energy and governance
- Lack skills and high turnover
- Limited use of data visualization tools
- Over-reliance on international donor funding and insufficient public funding

The review recommended that the Republic of Moldova:

- Ensure a stronger coordination role for its NSO
- Establish rules for collaboration among public agencies on generation and use of data
- Establish common nomenclatures and classifications and promote their use
- Increase capacity to process large volumes of data.

In response, the Republic of Moldova proposed to:

- Establish a national committee on sustainable development with the State Chancellery as the focal point
- Ensure a central role for the NSO
- Streamline relevant policy frameworks
- Undertake a mid-term review of nationalized SDG indicators and Moldova 2020 – a National Development Strategy
- Ensure data are open for use.

Source: UNDP, [Data Ecosystems for Sustainable Development - An Assessment of Six Pilot Countries](#).

### 3.1.3 Coordination and collaboration – Global responses

At the global level, coordination and collaboration for SDG measurement and monitoring is assured primarily by the HLG-PCCB and the IAEG-SDGs (see Section 3.1.1). In addition, the [Global Partnership for Sustainable Development](#) promotes coordination and collaboration by working with stakeholders across countries and sectors to harness the data revolution for sustainable development. It is a network of governments, private sector and civil society actors, global organizations, academic institutions, foundations, statistics agencies and others. It works to ensure that all people can trust that their data are used for their benefit and with their consent and that data are used by:

- *Governments* to improve policymaking and service delivery, including aligning budgets with needs
- *Citizens and civil society groups* to make better decisions and hold leaders accountable for their actions
- *Companies* to build capacity and drive entrepreneurship and innovation.

UNDP has developed a [rapid integrated assessment \(RIA\) toolkit](#) to support countries in mainstreaming the SDGs into national and subnational planning by helping assess their readiness for SDG implementation. The toolkit outlines the steps to conduct an RIA of the SDGs to determine their relevance to the country context, both at the national and subnational level, and interlinkages across targets. One of the steps addresses measurement and monitoring. The assessment is a first step in defining a roadmap for a country to implement the SDGs. The target audience for the toolkit is decision-makers at the national and subnational levels. Other experts – in particular from regional and global organizations, NGOs and civil society – may also find it useful when developing plans to implement the SDGs in support of government partners.

### 3.1.4 Modernizing statistical processes and systems – Global responses

United Nations Member States, in the [Addis Ababa Action Agenda of the Third International Conference on Financing for Development](#), noted the importance of drawing on new data

sources to meet user needs: “National statistical systems have a central role in generating, disseminating and administering data. They should be supplemented with data and analysis from civil society, academia and the private sector.”<sup>23</sup> National statistical offices can play a critical role in identifying potential new sources and helping to ensure quality so these data can complement data from official sources.

UNDP has developed a [Guide to Data Innovation for Development](#). Data innovation is defined as the use of new or non-traditional data sources and methods in combination with traditional data to study difficult issues. New, or non-traditional data sources may include digital data derived from social media, web content, commercial transaction data or GPS devices. Combining data sources often provides more complete, timely and/or granular information about an issue. Data innovation can, therefore, open opportunities for more cost-effective interventions, as well as provide entirely new insights that may have been overlooked through traditional approaches.

A [System-wide Roadmap for Innovating UN Data and Statistics](#) has been developed by the United Nations Secretariat with the intent of supporting the development of NSSs and providing authoritative regional and global data to support the international community in responding in a timely fashion to policy needs. The roadmap aims to strengthen the position of the United Nations as a primary provider of global data. It covers all three pillars of the United Nations (peace and security, human rights and development) as well as humanitarian assistance.

### 3.1.5 Strengthening basic statistics and accounts – Global responses

Strengthening environmental statistics was noted earlier to be of particular importance to the success of SDG measurement and monitoring (see Section 2.4). Demand for environmental statistics is increasing as environmental challenges become more serious. Governments, businesses, households and other decision-makers require improved environmental statistics. Providing such statistics is challenging because they cover a wide range of issues, are multi- and inter-disciplinary in nature and come from different institutions using varied methods. Recognizing this, two major guiding frameworks have been developed to bring order to this complex and important domain. The first is the United Nations [Framework for the Development of Environment Statistics](#) (FDES). The FDES is a flexible, multi-purpose conceptual and statistical framework that:

- Identifies the scope and topics relevant to environmental statistics
- Contributes to the assessment of data requirements, sources, availability and gaps
- Guides the development of multipurpose data collection processes and databases
- Assists in the coordination and organization of environmental statistics.

It marks out the scope of environment statistics and provides an organizing structure to guide the collection and compilation of environment statistics at the national level. It brings together data from various relevant subject areas and sources. It is broad and holistic in nature, covering the issues and aspects of the environment that are relevant for policy analysis and decision making by applying it to cross-cutting issues such as climate change. The FDES is particularly useful for countries at early stages of developing environmental statistics.

The second global framework is the United Nations framework for environmental accounting, known as the [System of Environmental-Economic Accounting 2012 – Central Framework](#) (SEEA-CF). The SEEA-CF is a handbook outlining the internationally agreed concepts, definitions, classifications, accounting rules and tables for producing environmental accounts. It is the result of many years of cooperative efforts by national statistical agencies

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<sup>23</sup> Paragraph 125.

and the global statistical community to standardize the approach to the integrated measurement of environmental and economic issues. The SEEA-CF integrates economic and environmental data to describe the interrelationships between the economy and the environment and the stocks and changes in stocks of environmental assets. The SEEA-CF follows an accounting structure similar to that of the System of National Accounts in order to facilitate the integration of environmental and economic statistics. The SEEA-CF is a multipurpose system that generates a wide range of statistics, accounts and indicators with many different potential analytical applications. It is a flexible system that can be adapted to countries' priorities and policy needs while at the same time providing a common framework, concepts, terms and definitions. Both [FDES](#) and [SEEA-CF](#) are relevant to measurement and monitoring of many SDGs.

The [UN-Water Integrated Monitoring Initiative for SDG 6](#) seeks to support countries in compiling data to report on global progress towards SDG 6 (ensure access to water and sanitation for all) and to monitor all SDG water- and sanitation-related indicators in an integrated and holistic manner. The initiative brings together the United Nations organizations formally mandated to compile country data on SDG 6, building on existing efforts such as the WHO/UNICEF [Joint Monitoring Programme for Water Supply, Sanitation and Hygiene](#), the UNEP [Global Environment Monitoring System for Water](#), the FAO [Global Information System on Water and Agriculture \(AQUASTAT\)](#) and the UN-Water [Global Analysis and Assessment of Sanitation and Drinking-Water](#). This joint effort enables synergies across organizations as well as a harmonization of methodologies and data requests, leading to more efficient outreach and reduced reporting burden. At the national level, it promotes intersectoral collaboration and consolidation of existing capacities and data across organizations. The overarching goal of the initiative is to accelerate achievement of SDG 6 by increasing the availability of high-quality data for evidence-based policymaking, regulations, planning and investments at all levels.

A notable outcome of the initiative during its first phase was the development of the [2018 SDG 6 Synthesis Report on Water and Sanitation](#), which assessed progress towards all SDG 6 targets and informed discussion at the 2018 HLPF. The influence of this report was enhanced by the fact that it represented a coordinated effort by all United Nations agencies responsible for SDG 6 indicators to speak with one voice. With support from the Governments of Germany, the Netherlands, Sweden and Switzerland, the [second phase](#) of the initiative (2019-2022) is concentrating on refining SDG 6 indicator methodologies; further supporting countries to collect, analyse and report SDG 6 data; and supporting decision-makers at all levels to use the data. Box 4 provides an example of how the initiative has improved measurement and monitoring for Indicator 6.5.2 (proportion of transboundary basin area with an operational arrangement for water cooperation).

#### *Box 4 – Monitoring transboundary water cooperation through SDG Indicator 6.5.2*

SDG Indicator 6.5.2 monitors the proportion of transboundary water basins in a country covered by an “operational arrangement” for water cooperation. The indicator methodology provides criteria for determining “operationality”, including whether countries have established joint institutional arrangements, whether they exchange data at least annually, whether they meet at least once a year and whether they have co-ordinated management plans or joint objectives. Through [UN-Water's Integrated Monitoring Initiative for SDG 6](#), ECE and the United Nations Educational, Social and Cultural Organization (UNESCO) took joint responsibility for developing the indicator methodology and, as co-custodians, are responsible for overseeing its implementation.

Reporting is to take place every three years, with the first [data for 2017](#) based on reports from more than 100 of the 153 countries that share transboundary basins. This high level of response – given it was the first time that countries reported on the indicator – bodes well for future reporting. It also played a role in the decision to elevate the indicator to Tier 1 status within the [SDG indicator classification](#) – meaning it is recognized as being conceptually clear, based on internationally established methodology and standards and that data are available for at least 50 percent of countries sharing transboundary basins.



While the response to the first reporting exercise was positive, the exercise was not without its challenges. As this was the first time countries applied the indicator methodology, it proved challenging to ensure that all relevant stakeholders were involved in reporting so that the most complete and accurate national data were provided. Data availability proved particularly challenging in relation to transboundary groundwater where data, if available, are held by national geological survey offices and/or not widely disseminated. However, the first reporting exercise also revealed several good examples inter-departmental coordination, with committees established to ensure collaboration. This led not just to better reporting but also the opportunity to deepen understanding of the state of transboundary cooperation across a wide range of sectors. A [detailed report](#) on the results of the first data collection exercise has been prepared.

A further challenge in reporting on transboundary water cooperation related to differing understanding of the nature of operational arrangements. On occasions, countries reported different data on the same basin. It is hoped that countries can compare previous reports and address differences in future reports. Bi-national organizations can play a particularly useful role in coordinating responses between countries.

An additional feature of reporting under Indicator 6.5.2 is that it takes place in coordination with reporting under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (known as the [Water Convention](#)). In practice, this means that Parties to the Water Convention need only complete [one questionnaire to report on both implementation of the Water Convention and Indicator 6.5.2](#). Other countries are invited to complete the same questionnaire – more than 90 countries did so during the first reporting exercise – allowing them to substantiate the data provided and flexibility to report on a wider range of cooperative activities than the indicator itself allows.

### 3.1.6 Dissemination and communication – Global responses

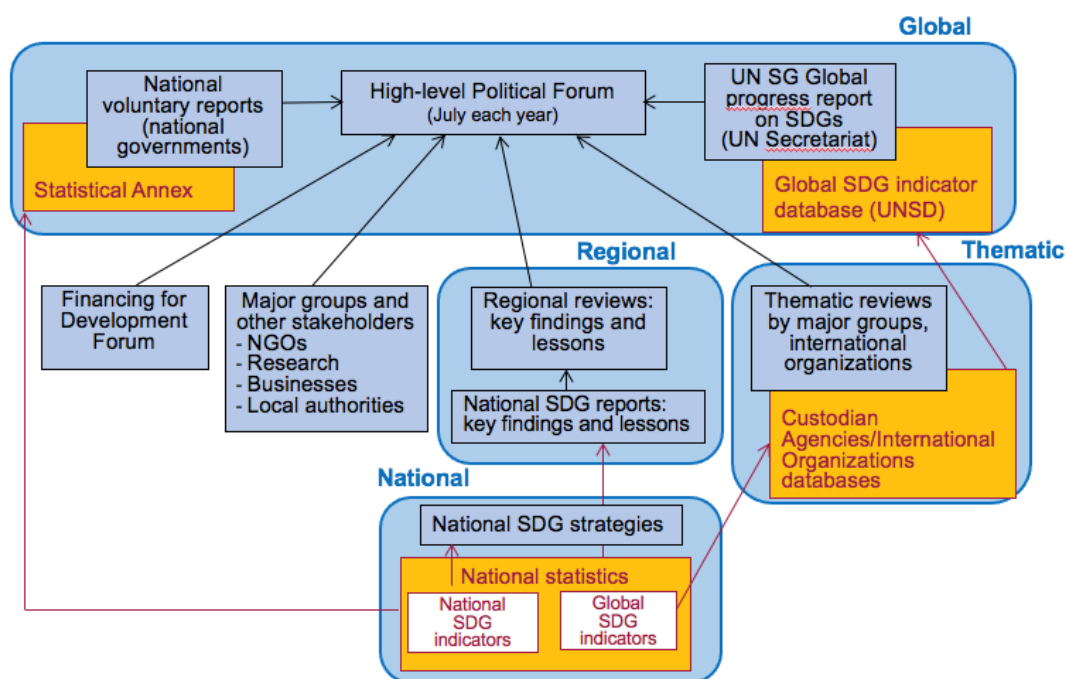
The global statistical community has invested a great deal in assuring the smooth flow of SDG data and indicators from the national to the regional and, ultimately, the global level so that progress toward the 2030 Agenda can be consistently and coherently communicated. In 2017, the United Nations Statistical Commission requested the IAEG-SDGs to develop guidelines to ensure effective data flows between regional and global organizations and countries. According to the resulting [guidelines](#), SDG measurement and monitoring should be primarily based on data and statistics produced by NSSs.<sup>24</sup> The coordinating role of NSOs in NSSs should be encouraged and seen as central to the reporting process, while respecting and promoting existing data reporting arrangements between other actors in the NSS and regional and global organizations. The use of data transmission standards and tools to enable automated data exchanges, such as SDMX, should be promoted. NSOs and NSSs should, wherever possible, use internationally agreed standards, methodologies and definitions in data collection and statistical production. Metadata covering data sources, definitions, methods of data collection and computation used in indicator compilation should always be provided. International agencies and NSSs are expected to work together towards ensuring the most transparent and efficient way of reporting SDG indicators from the national level for international reporting, ideally using national reporting platforms (see Section 3.2.5). Finally, SDG measurement and monitoring should always adhere to the FPOS.

Figure 1 shows the major players in global data flows for SDG measurement and monitoring. The system begins with NSOs and NSSs, who are responsible for preparing SDG indicators at the national level (whether they be for national reporting purposes or for reporting to the global system). Indicators intended for global reporting then flow to custodian agencies, which are generally organizations of the United Nations or other global bodies with responsibility for compiling specific indicators. Custodian agencies then feed the indicators into the [global SDG database](#), where they serve as an important input into the annual

<sup>24</sup> An accompanying set of [best practices in data flows and reporting](#) has also been prepared by the IAEG-SDGs.

reports of the [United Nations Secretariat](#) and the [United Nations Secretary General](#) on progress toward the SDGs. These, in turn, serve as background materials for the annual meeting of United Nations Member States – the [High-Level Political Forum on Sustainable Development](#) (HLPF). Another set of major inputs into the HLPF are the [voluntary national reviews](#) (VNR) on SDG progress prepared by Member States themselves. These reviews all contain statistical annexes in which SDG indicators are presented (either national indicators or global indicators or both).

Figure 1 – Global data flows for SDG measurement and monitoring



In 2016, the Government of the United States of America developed and launched an [online national reporting platform for the SDGs](#). The innovation behind the initiative is the adaptation of an existing product with an established open-source community, offering a solution that is country-led, free for any country or organization to replicate and fully customizable. The United Kingdom Office for National Statistics further developed the tool and established it as its own [national reporting platform](#) for the SDGs. New enhancements include the ability to display disaggregated data for indicators – a feature that helps identify and prioritize those furthest behind. Both online platforms are works in progress. The bilateral collaboration continues to support other countries in adopting their platforms and developing additional features, such as enhanced data visualization.

The approach to reporting global progress against SDG 7 (affordable and clean energy) provides an example of effective dissemination and communication. Called [The Energy Progress Report](#),<sup>25</sup> the approach consists of an interactive website sponsored by the various custodian organizations for SDG 7 that provides a global overview of progress toward each of the goal's three targets, as well as county-specific data.<sup>26</sup> The site supports tracking of progress of the energy-related objectives. Building upon it, regional reports offer expanded and more in-depth analysis. The one for the [ECE region](#) applies a broad concept of “energy for sustainable development”, which measures progress towards all energy-related SDGs, reflecting the crosscutting interconnections.

<sup>25</sup> This report was referred to until 2017 as the [Global Tracking Framework](#).

<sup>26</sup> The International Energy Agency, the International Renewable Energy Agency, the United Nations Statistics Division, the World Bank and WHO.

### 3.1.7 Financial and human resources – Global responses

The [Dubai Declaration](#) on global financing in support of the implementation of the Cape Town Global Action Plan called in 2018 for the establishment of an innovative funding mechanism to mobilize both domestic and international funds to strengthen the capacity of national data and statistical systems for SDG measurement and monitoring. The funding mechanism should be created under the guidance of representatives of statistical systems and different data and donor communities who support the decision making on its operations. To date, no such mechanism has been put in place. This is a concern, since a 2018 [PARIS21 survey on approaches to capacity development](#) for measurement and monitoring found that the dominant factor preventing success of capacity development initiatives for most countries is a shortage of financial resources.

An innovative approach to supporting financing for measurement and monitoring was launched in 2019 by OECD in the form of an interactive website to inform policy leaders and decision-makers on resources to achieve the 2030 Agenda. Realizing that there are no global statistics available on financing the SDGs, the OECD [SDG Finance Lab](#) was created to quantify the contribution of different donors to the SDGs and to help increase transparency and improve the impact of aid. The first product of the Lab – the SDG tracker – uses [artificial intelligence to link](#) the financial contributions of bilateral lenders, multilateral organizations and philanthropic foundations with specific SDGs. The SDG Tracker draws data from the OECD [Credit Reporting System](#), which provides information on aid activities by country, sector and project, to map official development assistance to the SDGs. The results show, for example, that the highest funding goes to SDG 9 (industry, innovation and infrastructure), which received 12 per cent of the total, while SDG 14 (life below water) and SDG 15 (life on land) receive the least funding (3.5 per cent) among the SDGs. Users can view aid flows from the perspective of the donor or the recipient.

## 3.2 Regional responses

### 3.2.1 Defining and supporting the role of National Statistical Offices – Regional responses

ECE is actively supporting its member States in overcoming the challenges of SDG measurement and monitoring. The creation of the measurement and monitoring nexus team that commissioned this report (see Chapter 1) is just one example of this. The nexus team provides focus to ECE efforts to support countries and ensure that it does so in a way that is consistent across its subprogrammes.

ECE, through the Conference of European Statisticians,<sup>27</sup> acted very quickly after the adoption of the SDGs in 2015 to formulate the [Declaration on the role of national statistical offices in measuring and monitoring the Sustainable Development Goals](#). The declaration emphasized the importance of sharing experience and cooperation at sub-national, national, regional and global levels, recognizing that regional and global organizations have particular technical expertise in this area. It also emphasized the importance of effective data sharing from countries to regional and global organizations. More specifically, the declaration committed NSOs in the ECE region to:

- Contribute actively to SDG measurement and monitoring using high-quality statistics produced using administrative, geospatial and other new data sources
- Engage effectively with other members of the NSS and with extra-governmental stakeholders

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<sup>27</sup> The [Conference of European Statisticians](#) comprises the heads of the NSOs of all ECE member States, plus the heads of statistics of the OECD, Interstate Statistical Committee of the Commonwealth of Independent States, Eurostat, the International Monetary Fund, United Nations Secretariat and the World Bank as permanent observers.



- Provide leadership in the dissemination and communication of SDG indicators
- Increase the availability of statistics disaggregated by specific groups
- Further develop their statistical capacity to ensure effective measurement and monitoring.

The Conference of European Statisticians went on to create the [Steering Group on Statistics for Sustainable Development](#) in 2016 with the aim to coordinate and guide its work in this area and ensure that the need to support measurement and monitoring is considered explicitly in all statistical activities of ECE and not just in its Statistics Division. The Steering Group, whose terms of reference were renewed in 2019, is supported by four task teams, each with its own terms of reference and objectives, addressing the ECE regional reporting platform, data transmission, capacity development and communication of statistics for SDGs.<sup>28</sup>

Along with the declaration of the role of NSOs in measurement and monitoring, the major output of the Steering Group has been the publication of a generic [Road Map on Statistics for Sustainable Development Goals](#) (CES Road Map) laying out what needs to be done, who the stakeholders are and what the opportunities are for cooperation in implementing the Declaration by the Conference of European Statisticians. The first edition of the CES Road Map was published in 2017 and an updated edition was being prepared in 2020. The road map provides guidance to NSOs on:

- Establishing national mechanisms for collaboration
- Assessing readiness to provide data on global SDG indicators (based on a [self-assessment template](#))
- Developing regional, national and sub-national indicators
- Providing data on global SDG indicators
- Building statistical capacity for statistics for SDGs
- Communication and dissemination of statistics for SDGs.

Though not developed specifically in response to the 2030 Agenda, the [Generic Law on Official Statistics](#) (Generic Law) developed jointly by ECE, the European Free Trade Association and Eurostat is nonetheless a valuable tool for countries looking to better support the work of their NSO or NSS. The Generic Law specifically targets the countries of Eastern Europe, the Caucasus and Central Asia, providing a robust template from which laws underpinning national statistics can be drafted. The Generic Law is fully consistent with the FPOS and aligned with the principles of the *European Statistics Code of Practice* where applicable. The intent is that the Generic Law be adjusted to national circumstances while maintaining as much of its content as possible, as it carefully defines the rights and obligations of the NSO as the lead agency in NSS, as well as the principles and procedures to be applied in developing, producing and disseminating official statistics.

### 3.2.2 Coordination and collaboration – Regional responses

As noted in the Declaration by the Conference of European Statisticians on the role of NSOs, NSOs have a key role to play in ensuring coordination and collaboration in SDG measurement and monitoring. Reflecting this, the CES Road Map devotes an entire section to the related issues, noting that the precise role given to an NSO depends on the nature of the NSS (centralized versus decentralized), national statistical legislation and existing frameworks for coordination. As possible elements of their role, the CES Road Map notes that NSOs are well positioned to:

- Promote discussion of data collection and analysis between government agencies and regional and global organizations

<sup>28</sup> Additional information regarding the activities of the Conference of European Statisticians related to sustainable development, including work carried out that pre-dates the SDGs, is available [here](#).

- Communicate with stakeholders on statistical matters relevant to measurement and monitoring
- Coordinate advocacy for data collection
- Coordinate information exchange on SDG indicators
- Promote discussion on statistical capacity-building.

An important task for NSOs is preparation of detailed road maps for measurement and monitoring. Road maps should cover not just issues within the purview of the NSO and NSS but also those that require cooperation with partners outside the NSS; for example, coordinating data flows for indicators that require data from non-governmental sources.

In fulfilling their coordinating roles, NSOs should work in close collaboration with the organization responsible for national reporting. In many countries, the latter role is played by a policy body identified as the national SDG focal point, such as a unit in the prime minister's office or the planning ministry. The organization responsible for national reporting is likely to be well integrated into regional and global SDG processes and can be an important source of insight into the information needs of policymakers for the NSO. NSOs should be included from the outset in any reporting plan developed by the focal point to take advantage of this insight and apply it in coordinating the involvement of the NSS. Since some countries already have coordination frameworks between policymakers and statisticians, consideration should be given to integrating SDG measurement and monitoring into existing processes before creating new ones.

At a higher level, ECE coordinates the [Regional Forum on Sustainable Development](#), which provides a platform for review and follow up of the implementation of the SDGs in the region. Similar regional forums exist in other parts of the world, feeding both national and global processes. The summary from each regional forum provides the region's official input for the annual [High-level Political Forum](#) (HLPF) on the Sustainable Development Goals. The Regional Forum provides an important opportunity for statisticians and policymakers to discuss data needs for measurement and monitoring. At its 2017 meeting, for example, a roundtable was organized to address the following questions:

- What are the role and limits of official statistics for measurement and monitoring? How can other data sources be used? What mechanisms can support cooperation between policymakers and statisticians? How can the needs of policymakers be identified?
- How to prioritize national statistical programmes for measurement and monitoring in view of resource constraints?
- How can a measurement and monitoring process including national, regional and global considerations be established in the region? How can coordination between different organizations in the region and regional United Nations entities be achieved?<sup>29</sup>

The 2020 meeting saw the launch of several products that facilitate access to high-quality information on how the ECE region and member States are progressing toward the SDGs:

- [The ECE SDG Database](#), which allows users to compile customized tables that, by default, show all relevant indicators disaggregated by gender, a feature not available in any other regional or global database
- [The ECE Dashboard of SDG Indicators](#), which provides users with quick access to graphs, maps and tables focusing on the indicators deemed most relevant in the region, enhancing their visibility and simplifying their use

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<sup>29</sup> See the [Report of the Regional Forum on Sustainable Development for the UNECE region on its first session](#) for the outcome of the roundtable.

- The ECE [SDG Knowledge Hub](#), which provides a single point of entry to a wide range of information relevant to coordination, implementation and measurement and monitoring of the SDGs in the region
- The [first regional report on process toward the SDGs](#) of ECE, which was created using the capacities of the Database and Dashboard and describes the how countries are fulfilling targets and making progress and also those areas where additional efforts will be needed to ensure the goals are met by 2030.

Another major regional initiative relevant to coordination and collaboration is the [Regional United Nations Coordination Group on Data and Statistics for Europe and Central Asia](#). This reporting body under the Conference of European Statisticians is co-chaired by ECE and UNEP and builds on the work of the previous [Issue-Based Coalition on Data and Monitoring for the Sustainable Development Goals](#). The objectives of the coordination group are to:

- Coordinate statistical work of different agencies to ensure coherence and synergies at the country level, as well as with the priorities and work carried out by the main intergovernmental body, the [Conference of European Statisticians](#), and the activities of other regional organizations, including [Eurostat](#), the [European Free Trade Association](#), and [CIS-Stat](#)
- Adhere to statistical norms and standards in modernized national statistical systems (in line with the FPOS) towards high quality, comparable, timely data for decision-making.

### 3.2.3 Modernizing statistical processes and systems – Regional responses

As the CES Road Map notes, the need for SDG measurement and monitoring strengthens the case for modernization of statistical processes and systems. No country can produce all the statistics required for measurement and monitoring and the pressure to meet SDG indicator needs comes at a time of generally shrinking financial resources, so efficiency improvements through modernization of statistical systems are paramount. ECE has been actively supporting the statistical modernization agenda for the last decade. Its efforts have resulted in several major outputs, including:

- The [Generic Statistical Business Process Model](#) (GSBPM) describing the core business processes undertaken by statistical organizations to produce statistical outputs
- The [Generic Statistical Information Model](#) (GSIM) describing the core information needed by statistical organizations to produce statistics
- The [Generic Activity Model for Statistical Organizations](#) (GAMSO), which extends and complements the GSBPM by describing the overarching activities and processes that support the production of official statistics
- The [Common Statistical Data Architecture](#) (CSDA), which facilitates sharing of statistical services and provides a practical link between conceptual GSBPM and GSIM standards and statistical production process

The ECE work in this area is led by the [High-Level Group for the Modernization of Official Statistics](#) (HLG-MOS), a group of NSOs working to identify trends, threats and opportunities in modernizing statistical organizations. The HLG-MOS is supported in its work by four sub-groups:

- A group on standards for modernization responsible for developing, maintaining, and interlinking GSBPM, GAMSO and GSIM
- A group on capacity-building and communication focused on change management, collaboration frameworks and communications
- A group on tools sharing for developing CSDA and facilitating the sharing of statistical services

- An “ideas factory” known as the Blue Sky Thinking Network for assessing emerging areas of work and new developments, and for stimulating innovative practices.

Nearly all ECE member States are using the GSBPM to modernize their statistical production processes. Use is widespread in other regions as well, making it a global model. All of the modernization standards developed by the HLG-MOS have been pilot-tested first in the region before being applied in other parts of the world.

In addition to supporting the work of the HLG-MOS, ECE has also published [guidance on modernizing statistical legislation](#) to assist countries wishing to benchmark or update the legal framework of their NSS. The work responds to the need to reinforce legal frameworks to guarantee the independence, integrity and accountability of statistical systems and maintain data quality while supporting the introduction of new business models and data sources. Several countries in the region, including Malta, Norway, Slovakia and Switzerland, are applying the guidance to revise their statistical laws. In addition, the [Republic of Moldova](#), Armenia and Kyrgyzstan have already adopted new statistical legislation based on the Generic Law.

Eurostat is also contributing to the regional modernization agenda with its [Vision 2020](#), which focuses on better addressing user needs, improving statistical quality, harnessing new data sources, promoting efficiency in production and new approaches to communication and dissemination.

### 3.2.4 Strengthening basic statistics and accounts – Regional responses

ECE and other organizations within the ECE region have responded in many ways to the need to strengthen basic statistics and accounts and develop policy tools to improve SDG measurement and monitoring. Some of the initiatives undertaken are outlined below, starting with the significant efforts to improve environmental statistics.

#### *Environment*

Recognizing that environmental statistics are in particular need of improvement, the Conference of European Statisticians produced the [first ever recommendations on climate change-related statistics](#) in 2014, providing the basis for effective decision-making for climate action. ECE is the secretariat the [Steering Group on Climate Change-Related Statistics](#), which hosts an annual expert forum for users and producers of climate change-related statistics to share ideas.

The [ECE set of environmental indicators](#) is being aligned with SDG indicators by the ECE [Joint Task Force on Environmental Statistics and Indicators](#). The Joint Task Force provides a central hub for building capacity and fostering discussion among countries of Eastern Europe, the Caucasus, Central Asia and South-Eastern Europe on indicators ranging from air pollution, climate change, water, biodiversity, land and soil to agriculture, energy, transport and waste.

Other notable ECE efforts to support improvement of environmental statistics include the following:

- A dedicated [Task Force on Waste Statistics](#)
- The regional [Convention on Long-range Transboundary Air Pollution](#), which supports air quality monitoring via a network of over 150 sites that collect data to help assess the environmental and health impacts of air pollution (see Box 5)
- Integration of SDGs into national environmental performance reviews (see Box 6)
- [Recommendations on the Role of Official Statistics in Measuring Hazardous Events and Disasters](#).

### Box 5 – ECE air pollution monitoring

In the domain of air pollution statistics, the [ECE Working Group on Effects](#) (established in 1980) is the world's most extensive network of harmonized environmental monitoring for air pollution effects. The network studies air pollution effects in the pan-European area and North America based on international cooperation on research, monitoring and modelling. It manages six international cooperative programmes, a joint Expert Group on Dynamic Modelling and a joint Task Force on Health with WHO. The network carries out:

- Long-term monitoring of ecosystems and materials at thousands of sites
- Intensive monitoring for research and modelling at selected sites
- Trend exposure programme for materials and case studies at cultural heritage sites
- Assessment of relationships between pollutant load and impacts
- Studies on modelling and mapping of critical loads and levels for acidification, eutrophication and ground-level ozone impacts
- Evaluation of air pollution effects on human health.

The extensive monitoring network and long-term data are unique and are vital to detecting the rate, trend, extent and intensity of changes of air pollution effects on ecosystems and materials. It enables forecasting of potentially adverse effects, provides early warnings and helps to assess the effectiveness of air pollution policies.

### Box 6 – Integration of the SDGs in Environmental Performance Reviews

An ECE [environmental performance review](#) (EPR) is an assessment of the progress a country has made in reconciling its environmental and economic targets and in meeting its international environmental commitments. The EPR programme assists and supports member States in improving their environmental management and performance; promotes information exchange on policies and experiences among countries; helps in the integration of the environmental policies into economic sectors; promotes greater accountability to the public; strengthens cooperation with the international community; and contributes to the achievement and monitoring of relevant SDGs.

The most recent cycle of EPRs have focused on environmental governance and financing in a green economy context; cooperation with the international community; and environmental mainstreaming in priority sectors. In line with the [Batumi Ministerial Declaration in 2016](#), EPRs began in 2017 to address relevant SDGs to provide guidance to countries in designing policies and measures to achieve the 2030 Agenda,<sup>30</sup> leading to a variety of valuable [lessons learned](#). Reviews have also addressed systemic issues such as the existence of institutional frameworks for implementation and review of the 2030 Agenda; integration of SDGs into national policy; data gaps; and resource availability. The following EPRs published up to 2019 integrated SDGs: [Albania](#), [Bosnia and Herzegovina](#), [Mongolia](#), [Kazakhstan](#) and [North Macedonia](#).

The coverage of the SDGs in EPRs has been tailored on a case-by-case basis to be relevant to the content of the reviews, which has, in turn, been determined in consultation with the member State concerned. During preparatory missions, the ECE secretariat has consulted with relevant national institutions and the United Nations in-country teams on the needs and practicalities of integrating SDGs into the reviews. The goals most often covered in the reviews include 6 (clean water and sanitation), 12 (responsible consumption and production), 13 (climate action) and 15 (life on land).

The level of awareness of the SDGs is different in each reviewed country. In none of the countries reviewed to date is the national environmental authority the leading or coordinating authority for SDG measurement and monitoring. Given this, the simple exercise of integration of SDGs into the reviews has raised the profile of the national environmental authorities within the national setting. The countries are at various stages of defining institutional and policy frameworks for measurement and monitoring. In some countries, these frameworks are already in place and functional. In others, the process is only beginning and the EPR process has helped draw attention to their importance. In all countries, the process of setting the national SDG targets and indicators is in its early stages, making the SDG related recommendations in the EPRs timely and relevant.

<sup>30</sup> See paragraph 9.



The key challenge for the integration of SDGs into EPRs is data availability. In some cases, efforts to include specific targets had to be dropped due to the lack of information. The fact that a data availability review was undertaken, however, made the exercise valuable for the countries.

Incorporating SDGs into the EPRs requires effort from both national and international experts to assemble and review the necessary data. This process has been useful in strengthening cooperation between national environmental authorities, NSOs and the authorities responsible for coordination of the 2030 Agenda.

## Forests

The joint ECE/FAO [forest resources programme](#) collects data on the state of forests and their management. Following the adoption of the SDGs, there was need for greater focus on reporting on the achievement of Goal 15 (protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss). In 2018, at the request of member States (see Box 7), an updated reporting system containing indicators to measure targets 15.1 and 15.2<sup>31</sup> was launched and guidance on reporting was provided through face-to-face training sessions. As a result, extensive and high-quality data are being provided for targets 15.1 and 15.2 on sustainable forest management for 50 of 56 member States. Beyond the two SDGs indicators, the reporting system includes additional variables at the global level, further extended at the pan-European one. This should make it possible to identify and address specific challenges in the achievement of those targets.

In addition, Guidelines for [sustainable forest management indicators](#) (see Box 8) have been developed by ECE.

### *Box 7 – Supporting ECE member States to overcome challenges in forest resource reporting*

ECE member State capacities to report data on forest resources vary greatly. Challenges include lack of basic source data and data collection systems and lack of resources to compile and report available data. Effective dissemination of data is not yet a given in many countries. Coordination between data compilers and data providers works well in some countries but not in others. National data are provided by officially nominated national correspondents who transform them to the common format. Each country develops its own structure, mechanism and funding in support of this activity. Countries have limited capacity to collect and validate high-quality data and, although international cooperation mechanisms are well developed and available, several countries lack the resources to implement them at the national level.

Together with FAO (custodian organization of SDG forest indicators) and other international partners (notably [Forest Europe](#)), ECE developed a programme to support national data collection systems, develop forest information systems and build country capacity. The work benefited from cooperation and concerted actions among the main international partners engaged, which avoided overlaps and confusion, facilitated coordination of work and focusing and strengthened support for national work done in this area.

### *Box 8 – ECE assistance for development of sustainable forest management criteria and indicators*

<sup>31</sup> Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements. Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

To strengthen national capacity for development of [national criteria and indicators \(C&I\) for sustainable forest management](#), ECE is completing a project titled [Accountability Systems for Sustainable Forest Management in the Caucasus and Central Asia](#). The project targets five beneficiary countries (Armenia, Georgia, Kazakhstan, Kyrgyzstan and Uzbekistan). Its objective is to enable the beneficiary countries to develop the foundations of coherent forest information systems, to participate in international processes related to forests and to contribute to sustainable forest development and, ultimately, support development of the green economy. National C&I serve as tools to communicate the environmental and socio-economic importance of forests at national, regional and international levels. They are also essential in measurement and monitoring for Goal 15. Through national and regional workshops and technical support, the project supports the development of national C&I sets in the beneficiary countries, cross fertilization and mentoring.

As a result of the project, all beneficiary countries will develop a final C&I set. To ensure sustainability and impact of project results, countries will have full ownership of their sets and receive on-going support for their implementation and integration. The sets will be aligned with existing forest monitoring facilities (for example, state forest monitoring centres, national forest inventories and data collection from local forest administrations).

Three project countries (Armenia, Kazakhstan and Kyrgyzstan) have asked for further support to facilitate and enhance data gathering for the C&I sets and with forest policy and management tools.

### Energy

In the domain of energy statistics, ECE supports quality improvements through, among other initiatives, promotion of the United Nations [Framework Classification Resources – a global, principles-based and user-friendly system for classifying, managing and reporting mineral, petroleum, renewable energy, anthropogenic resources and injection projects](#). ECE contributes to advancing the energy statistics by participating in the development of a series of Policy Briefs to support SDG 7 review at the High-Level Political Forum.

### Demography

In terms of demographic statistics, the Conference of European Statisticians has prepared a [set of recommendations](#) to countries on the planning and execution of population and housing censuses, which are a fundamental source of information for many SDGs. The recommendations aim to improve comparability of census data at the regional level through the identification of a core set of census topics and the harmonization of concepts, definitions and classifications.

### Gender

Gender statistics play a central role in the SDG framework. Goal 5 of the SDGs calls for gender equality and empowerment of all women and girls. Gender equality is fundamental to all aspects of development, however. In total, 80 gender-relevant indicators are found across 14 of the 17 SDGs. With each of these comes the need for high quality data on often hard-to-define or sensitive topics. In this regard, ECE leads the [five-yearly regional review](#) of progress in the implementation of the [Beijing Platform for Action](#) on the empowerment of women, helping countries assess trends and progress in achieving gender equality in the region, identify current challenges, highlight good practices and commit to concrete actions in a range of key areas. Additionally, ECE conducts methodological work to ensure appropriate [measurement of gender issues](#) in official statistics. Internationally agreed [guidance on valuing unpaid household service work](#) is just one example. Moreover, ECE maintains a [gender statistics database](#), which highlights key trends in gender equality in the region. See Box 9 for other examples of ongoing ECE work in the field of gender statistics.

#### Box 9 – Examples of ECE work on gender statistics

**Women in local government** – ECE has been working closely with UN-Women over several years to ensure collection and compilation of data for the newly-defined SDG Indicator 5.5.1b on women

in local government, for which UN Women is the custodian agency. This close cooperation led to ECE replacing a previously existing indicator of women in municipal councils with a new one beginning in 2018.

**Intra-household power and decision-making** – Methodological work to improve the measurement of intra-household power and decision-making was launched by ECE in 2017. A [task force](#) was established to produce a set of recommendations, which are expected to be endorsed by the Conference of European Statisticians and published in the course of 2020.

**Communication of gender statistics** – Guidance notes on the communication of gender statistics were prepared by another ECE [task force](#) and are expected to be published in the course of 2020, together with an inventory of good practice in communication of gender statistics.

**Gender responsive standards** – ECE guidance on [gender responsive standards](#) enables consistent treatment of women's health and safety needs in standard-setting activities with direct relevance to Goal 5 (gender equality) and Target 8.3 (development-oriented policies for productive activities), while the portal on [standards for the SDGs](#) provides guidance on deploying standards for development in a manner that is consistent with national needs.

**Measurement of gender identity** – Many countries in the ECE region and outside have been working on the measurement of gender identity, conducting research and testing questions. A task team was created to support regional networking and support collaboration among experts in the field.

## Trade

Through the United Nations [Global Survey on Digital and Sustainable Trade Facilitation](#), implemented jointly with the regional commissions since 2015, ECE generates indicators for measuring progress towards achieving SDG 17.10 (universal, rule-based, open, non-discriminatory and equitable multilateral trading system) and tracking the spill-over effects of associated reforms. The ECE recommendation on [Trade and Transport Facilitation Monitoring Mechanisms](#) provides guidance on mechanisms for tracking the contribution of trade and transport to achievement of the 2030 Agenda. Since 2017, ECE national [assessments of regulatory and procedural trade barriers](#) have involved whole-of-government approaches to non-tariff measure reforms, with detailed recommendations for monitoring progress. ECE launched a framework of quantitative and qualitative indicators in 2020 to help governments harness trade to serve as a means of implementation. The framework draws on ECE national assessments and is being developed in consultation with the relevant agencies from countries where the studies were undertaken. It provides policymakers with a suite of development-driven indicators to choose from, as they strive to localize the 2030 Agenda. The indicators capture non-tariff measures, legislative reforms and capacity-building efforts aimed at increasing the efficiency and effectiveness of end-to-end supply-chain operations, and reference ECE standards, recommendations, conventions and good-practice guidelines developed under the sub-programmes on trade, economic integration, transport, environment and statistics.

## Science, technology and innovation and public-private partnerships

Science, technology and innovation (STI) and public-private partnerships (PPPs) are directly relevant to SDG 9 (build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation), as well as being key means of achieving the entire 2030 Agenda. PPPs help raise the funds needed to close the infrastructure investment gap, while STI is needed to develop new and cost-effective ways to meet society's material needs while safeguarding the environment for future generations.

ECE supports SDG measurement and monitoring through a series of national reviews of innovation for sustainable development and its new [Subregional Innovation Policy Outlook](#). ECE assists policymakers with methods and analytical support in measuring the contribution STI makes to national sustainable development priorities and in monitoring the impact innovation policies have on this contribution. In addition to recommendations on improving



statistical reporting on indicators under SDGs 9 and 17, ECE advises member States on systemic issues such as aligning innovation policies with national sustainable development priorities, assessing the impact of innovation policies on specific SDGs and identifying inconsistencies across policy domains that undermine overall progress.

The [PPP Project Impact Assessment Tool](#) is being developed to assess the compliance of infrastructure projects with the SDGs and the five “people-first” SDG outcomes.<sup>32</sup> This methodology, also called the People-first Impact Assessment Tool, will also allow governments to assess the resilience of infrastructure projects and their contributions to mitigating pandemic and other risks, as well as to distinguish between SDG-compliant and non-compliant projects in areas such as renewable energy, water and sanitation, waste management and urban transport. The tool will allow projects that score highly on all indicators to be showcased, encouraging their replication and scaling-up. The evaluation methodology will be rolled out both as a web-based self-assessment tool that will provide a score based on a simple questionnaire of closed-ended questions, and as a certified evaluation based on a detailed review of documentary evidence to get a score and a “People-first certification”.

### Transport

In the domain of transport statistics, providing improved compilation guidance for Indicator 9.1.2 (passenger and freight volumes, by mode of transport) is a priority for ECE. A framework for measuring the indicator will be released in 2020. Though it is classed as a Tier 1 indicator, data availability, methods, definition and interpretation are [not settled](#). The indicator is interpreted at the national level either as a simple measure of volumes (in which case, more traffic could be interpreted as a good thing) or as a modal split indicator (in which case, the policy goal should be explicitly defined; for example, to reduce the passenger car share of passenger transport). Modal splits pertain to many aspects of sustainable transport, due to the differing negative externalities of each mode in terms of the four pillars of sustainable transport (safety; environmental sustainability; efficiency; and affordability and accessibility). The forthcoming guidance will assist countries in interpreting the indicator for their own national circumstances and policy goals, addressing the choice of modes to include, units of measure, scope and advice on additional indicators that countries can use to measure sustainable transport. Country case studies on the indicator are [available](#) (see, for example, Box 10).

#### Box 10 – Measurement of SDG Indicator 9.1.2 in Slovenia

[Slovenia argues](#) that Indicator 9.1.2 (passenger and freight volumes, by mode of transport) should include all modes of transport and be measured according to the territorial principle.<sup>33</sup> Both passenger-km and tonne-km are well suited as units of measurement for the indicator. Slovenia compiles indicators for all modes of transport but the data are not comparable in all cases, since some are based on the residency principle (road freight transport, public transport) while others are based on the territorial principle (freight transport).

The modal split for freight transport between road and rail is important in Slovenia. In the case of passenger transport, the split between private cars and public transport is most relevant. Slovenian transport statistics track both passenger and freight volumes, but only rarely is it possible to present modal splits. Currently, the indicators published by the Slovenian NSO relevant to Indicator 9.1.2 are:

<sup>32</sup> The people-first outcomes are: increased access and equity, replicability, sustainability and resilience, economic effectiveness and stakeholder engagement.

<sup>33</sup> According to the territorial principle, indicators should include all activity that occurs within the national territory of a country regardless where the economic units responsible for the activity are resident. For example, according to the territorial principle, rail transport activities taking place within country X by a railway owned in country Y should be attributed to country X and not country Y. The residency principle is the opposite of the territorial principle: it should include all activity of units resident in a given country regardless where the activity occurs.

- Public land transport (passenger-km) by mode (train, bus)
- Share of rail (tonne-km) in total land freight transport

Both are based on Eurostat data and estimates rather than national data and, therefore, are not fully satisfactory, but nevertheless make the best of existing data.

In addition, ECE disseminates road safety data that directly monitor Indicator 3.6.1 (death rate due to road traffic injuries) based on official statistics provided by national administrations. Data are disaggregated by, among others, gender, age and type of road user. Data on public transport use (buses, trams and metros) relevant to Indicator 11.2.1 (proportion of the population with convenient access to public transport) are also produced.

For all transport statistics production, relevant methodological guidance is provided through common definitions given in the Glossary for Transport Statistics, a joint publication of ECE, Eurostat and the International Transport Forum.

### *Housing*

The backbone of the successful implementation of SDG 11 (make cities and human settlements inclusive, safe, resilient and sustainable) is improving the access and availability of housing data. Although ECE member States and their municipalities have made considerable progress in the production of housing data and statistics, [multiple challenges remain](#).

One of the key issues is the limited capacity of NSOs and other data producers in countries with economies in transition to produce housing statistics that highlight the local dimension of housing problems and shed light on the challenges facing disadvantaged groups with regard to access to decent and affordable housing. NSOs struggle to produce regular and frequent housing data disaggregated according to size and location of settlements, income, ethnicity, religion, migratory status and disability. Detailed housing statistics in many ECE countries are collected only every 10 years on the occasion of the housing and population census. Availability and access to data about housing problems, such as homelessness and condition of the housing stock (such as energy efficiency) also remains an issue.

It is housing data that shed light on affordability challenges in countries and cities in the region; for example, through the development of housing affordability measures that account for the costs of household operations (for instance, energy costs), the costs of commuting and others.

ECE supports countries and cities in the ECE region in the development and implementation of housing policies that are based on the best available data and evidence. In the context of the project [Evidence-based policies for sustainable housing and urban development in selected countries with economies in transition](#), carried out in Albania, Belarus, Georgia and Kyrgyzstan, ECE brings together data producers and users with a view to improving the production of a high quality, detailed and timely housing data.

### *Cities*

With regard to cities, ECE and the International Telecommunication Union developed [Key Performance Indicators for Smart and Sustainable Cities](#). The indicators were brought under the [United for Smart Sustainable Cities](#) initiative, which associates 16 United Nations agencies to achieve SDG 11 and other urban-related SDGs. The initiative serves as the global platform to advocate for public policy and to encourage the use of information and communication technology to facilitate and ease the transition to smart sustainable cities. To date, over 150 cities have been assessed against the key performance indicators, including cities in Albania, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, Norway and Ukraine among others in the ECE region (see Box 11 for an example from Voznesensk, Ukraine).

The Key Performance Indicators support cities in evidence-based decision-making, especially establishment of policies aligned with the objectives of the 2030 Agenda and review of progress toward achievement of the SDGs at the local level. Each key performance indicator, of which there are 91, is related to a specific SDG target. They are divided into the three dimensions of sustainable development: economy, environment and society and culture. The full list of key performance indicators, along with descriptions of the compilation methodology, is found in the document [Collection Methodology for Key Performance Indicators for Smart Sustainable Cities](#).

#### *Box 11 – Smart Sustainable City profile - Voznesensk, Ukraine*

Voznesensk is a medium-sized city in Ukraine, located in the Mykolaiv Oblast. It is the administrative centre of the Voznesensk district. Between 2016 and 2019, ECE carried out an [evaluation of the performance of Voznesensk](#) against the key performance indicators for smart and sustainable cities. Among other findings, the evaluation noted that:

- Productivity needs improvement
- Voznesensk suffers from water losses, high electricity costs, poor solid waste treatment and sewerage coverage and an ageing building stock which requires retrofitting
- The city benefits from abundant water of good quality, though 25 per cent of the population is not connected to the municipal water system and uses its own, sometimes illegal, wells
- Solid waste collection is managed well, though the existing landfill is almost full and attempts to establish separate waste collection have failed
- Student Internet access, enrolment and literacy rates are high, though the number of people with higher education qualifications is low compared to the national average
- Housing costs account for an average of 22 per cent of household income and the quality of the housing stock is poor and hard to maintain
- The city is reasonably safe in terms of violent crime and traffic accidents, but citizens are concerned about robbery, drug dealing and wild dogs.

The evaluation highlighted the ways in which the key performance indicators can be used to measure progress of cities towards smart and sustainable urban development and realization of the 2030 Agenda. It recommended priorities for action at the local level, such as the need to link the city's economic and social development with the use of the local natural resources and agriculture.

The [City Prosperity Initiative](#) developed by UN-Habitat can be used to evaluate how policies influence the prosperity of cities and ensure policy objectives at the local level are aligned with the SDGs. The Initiative allows the monitoring of SDGs at the city level and is based on a statistical approach that integrates and measures all indicators of Goal 11 (make cities and human settlements inclusive, safe, resilient and sustainable) and a selected number of other SDG indicators grouped into six dimensions: productivity; infrastructure development; quality of life; equity and social inclusion; environmental sustainability; and urban governance and legislation. UN-Habitat has supported more than 400 cities across the world in monitoring urban development against the targets of Goal 11.

#### *Health*

Finally, in the domain of health statistics the joint ECE/WHO [Protocol on Water and Health](#) is an international agreement aimed at protecting human health and well-being through better water management. The Protocol is the first international agreement adopted specifically to ensure adequate safe drinking water and sanitation for all and to protect water used as a source of drinking water. In many ways, it can be considered a precursor of Goal 6 (ensure access to water and sanitation for all) given its focus on the entire water and sanitation cycle and its inclusion of principles such as universality, horizontality, equity, prevention and safety.

Under the Protocol, parties collect and evaluate data on their national situations with regard to water, sanitation and health. In order to review progress, they make use of common

indicators, which cover areas such as access to water and sanitation services; water quality; wastewater treatment; and effective management, protection and use of freshwater resources. Parties to the Protocol are encouraged to provide disaggregated data to capture inequities that might be hidden in official statistics; for instance, reduced access to drinking water and sanitation in rural areas. They also collect data on the provision of water, sanitation and health services in schools and health-care facilities. Based on these data, national summary reports are prepared and submitted to the three-yearly meetings of the parties.

Data collected through the Protocol can be used to support SDG measurement and monitoring by aligning protocol indicators with SDG indicators. Data have already been used in global monitoring programmes for Goal 6; specifically, in the WHO/UNICEF [Joint Monitoring Programme for Water Supply and Sanitation](#) and the UN-Water [Global Assessment and Analysis of Sanitation and Drinking Water](#). Box 12 provides an example of how the protocol supports SDG measurement and monitoring in Portugal.

### *Box 12 - Integrating the Protocol on Water and Health and the SDGs in Portugal*

The Portuguese strategy for target setting under the Protocol on Water and Health is based on national legislation, national strategic plans and the SDGs. Where possible, indicators used for measuring progress towards targets set under the protocol are the same as the ones for the national targets established under the SDGs. For example, the indicator established under article 6.2(d) of the protocol (increasing the level of service coverage through sewerage networks) is aligned with the Portuguese indicators proposed for monitoring Target 6.2. The data used for monitoring both the Protocol and SDG indicators is collected by the Portuguese Water and Waste Regulation Authority.

As regards on-site sanitation, in 2016 Portugal added an indicator under article 6.2(d) of the Protocol to measure whether municipalities collect and safely dispose of wastewater from on-site sanitation systems. Although collection and disposal of wastewater by private operators is not covered by the indicator, it nonetheless supports improved management of on-site sanitation systems.

### 3.2.5 Dissemination and communication – Regional responses

As the CES Road Map on Statistics for SDGs notes, assessing progress toward the SDGs involves stakeholders from both statistical systems and the world of policymaking, making clear dissemination and communication both challenging and essential. Statisticians may not be accustomed to communicating outside of traditional statistical domains and policymakers may not be aware of the unique characteristics of official statistics. Both sides must therefore agree upon communication principles. This should begin with acknowledging the NSO as an independent provider of statistics and that not all available statistics are fit for purpose for measurement and monitoring, especially when non-official statistics from non-traditional sources must be used. Policymakers need to understand that data produced by NSOs and NSSs have undergone rigorous quality review, are independent and are comparable over time and between countries. When data from non-traditional sources must be used in measurement and monitoring, it is essential to clearly communicate their strengths and weaknesses.

The CES Road Map stresses that responsibility for dissemination and communication in relation to measurement and monitoring should rest with NSOs. It is their role to decide which statistics to disseminate and communicate, to whom and how. To this end, the road map itself should be seen as a communication tool, as it helps explain the challenges and importance of measurement and monitoring and the role of official statistics and NSOs in it. A [generic presentation on the road map](#) has been prepared for this purpose.

Given the volume of statistics involved, SDG measurement and monitoring requires modern and efficient dissemination and communication approaches. A national reporting platform (NRP) is one such approach. NRPs are integrated systems for disseminating SDG statistics comprising: (i) a website (or portal) that facilitates data uploading and downloading; (ii) one or more databases for organizing and storing data; and (iii) associated IT infrastructure to gather, host and secure the statistics. A properly designed NRP:

- Provides a convenient and simple-to-use portal through which statistics and related metadata required for measurement and monitoring can be both collected (uploaded) and disseminated (downloaded)
- Makes time-series of SDG statistics readily available on a timely basis and in a format suitable for electronic processing to any user with on-line access
- Facilitates data flows between countries and regional and global organizations involved in SDG measurement and monitoring and reporting (see more on this below)
- Avoids confusion by ensuring consistency with statistics published elsewhere (for example, in a database maintained by a member of the NSS other than the NSO)
- Is regularly maintained and updated
- Enhances statistical quality (for example, by permitting gaps in statistics to be identified).

To support NSOs in developing such systems, ECE has established the [Task Force on National Reporting Platforms](#) and prepared a practical guide to building a platform to support measurement and monitoring. Developing an NRP requires resources and time, especially when built from scratch. The process may be challenging for NSOs with little experience in the area. For this reason, the Task Force recommends that countries begin with simple, low-cost platforms that draw upon existing dissemination systems and learn from other countries' experience. According to a [survey of country progress in measurement and monitoring](#), around 37 of the 56 countries in the ECE region had developed or were building platforms to disseminate and communicate SDG indicators as of the end of 2019.

In order to facilitate sharing of SDG statistics regionally and globally, it is important the countries adopt global data sharing standards in whatever dissemination approach they take (be it a highly structured NRP or something less formal). As the CES Road Map notes, the [Statistical Data and Metadata Exchange \(SDMX\)](#) standard is a useful resource in this regard. SDMX is a set of technical standards and content-oriented guidelines, together with an IT architecture and tools, used for exchange and sharing of statistical data and metadata. SDMX is the basis for data sharing that underlies the United Nations Country Data database, which many countries already use to share their official statistics at the global level and which could be adapted for use in SDG measurement and monitoring.

In addition to its efforts to support member States in developing national dissemination and communication approaches, ECE has developed a regional platform, launched in 2020, that comprises three elements:

- A [knowledge hub](#) on statistics for SDGs
- A [dashboard](#) of SDG indicators for the region
- A [database](#) of SDG indicators

The objectives of the regional platform are to facilitate communications related to SDG measurement and monitoring in the region, provide ready access to up-to-date indicators and disseminate data and metadata. The knowledge hub and database are aimed primarily at statisticians and other professionals interested in methodologies, detailed indicators and analyses. The dashboard targets the public and policymakers, providing them with a simple means of comparing their country against its regional peers.

ECE has considerable experience in facilitating the coordinated dissemination statistics through its efforts to develop a [Shared Environmental Information System](#). This system



enables countries across the region to connect databases and make environmental statistics more accessible, facilitating their use for, among others, SDG measurement and monitoring.

The ECE [Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters](#) (better known as the Aarhus Convention after the Danish city where it was signed) promotes public access to environmental information and justice. The Aarhus Convention rests on three pillars: (i) access to environmental information; (ii) public participation in environmental decision-making; and (iii) access to justice in environmental matters. It defines procedures and standards with regard to these pillars that can be applied to a wide range of environmental matters. Thus, its implementation supports governments to the pursuit of numerous commitments, including those related to SDGs. The access-to-information pillar covers both the obligation of public authorities to respond to requests for environmental information and the obligation to collect and disseminate environmental information to the public. Public authorities are, with very few exceptions, to collect, maintain and disseminate various types of environmental information to the public. Environmental information is to be made available in electronic databases which can easily be accessed.

The [Protocol on Pollutant Release and Transfer Registers](#) (PRTR) to the Aarhus Convention requires that countries establish PRTRs, which are databases of releases and transfers of a broad range of pollutants from industrial facilities. These registers have proven to be an effective and relatively low cost means of gathering environmental information from the private sector and putting it in the public domain and promoting [public participation](#) in environmental matters. Box 13 discusses the ways in which the Aarhus Convention and the PRTR Protocol support SDG measurement and monitoring further.

### *Box 13 – The Aarhus Convention and SDG measurement and monitoring*

Due to their cross-cutting nature, the Aarhus Convention and the PRTR Protocol are applicable to a range of sectors (environmental protection, urban development, tourism, energy and green economy) and are, therefore, relevant for achieving all SDGs; in particular, however, they are relevant to SDG 16 (promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels). Reporting on the environmental dimension of SDG 16 is a challenge because few quantitative data are collected specifically for that purpose.

Parties to the Convention and Protocol must submit [national implementation reports](#) every third or fourth year in which they report progress on legislative, institutional and practical measures to enhance public access to information, participation and access to justice. The reports provide information regarding legislative frameworks and their enforcement and application that is relevant to:

- Target 16.3 (promote the rule of law at the national and international levels and ensure equal access to justice for all)
- Target 16.7 (ensure responsive, inclusive, participatory and representative decision-making at all levels)
- Target 16.10 (ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements).

In addition, PRTRs, in particular when they are linked with other data sources (for example, in the health, energy or planning domains), can be used to measure achievement of a number of other SDGs; such as, goals 7 (affordable and clean energy), 9 (industry, innovation and infrastructure), 11 (sustainable cities and communities), 12 (responsible consumption and production) and 13 (climate action).

Though implementation of the Convention and Protocol have potential to help countries address data gaps related to SDG measuring and monitoring, officials are often not aware of this potential. Consequently, the measures required to exploit it are often not implemented (for example, adapting data collection activities, creation of software tools and elaboration of cooperation mechanisms between institutions). For example, PRTRs can be readily modified to permit collection of data on



resource use and energy consumption. This is done by some countries, but not all, as it is not required under the Protocol. Examples of the use of PRTR data for measuring and monitoring progress towards SDGs have been described in some detail in the OECD publication [Framework on the Role of Pollutant Release and Transfer Registers \(PRTRs\) in Global Sustainability Analyses](#).

### 3.2.6 Financial and human resources – Regional responses

Partly in recognition of the challenges of measurement and monitoring, the Conference of European Statisticians adopted a [new approach to statistical capacity-building](#) in 2018 in line with the CD4.0 initiative of PARIS21 (see Section 3.1.2). In the past, ECE capacity-building was carried out mainly through training workshops, which placed the focus on people rather than organizations. In view of the challenges of measurement and monitoring and other issues, the need for a more holistic approach was identified on the grounds that capacity gaps often exist in terms of organizational and management culture. The new approach aims to continue building individuals' capacities across seven dimensions (Figure 2) while also enhancing organizational capacity for, among others, risk management and planning. In addition to supporting SDG measurement and monitoring, the Conference of European Statisticians sees particular need for organizational capacity-building with respect to:

- Geospatial information management
- Population and housing censuses, migration and gender statistics
- Environment statistics and environmental-economic accounting
- Modernizing official statistics
- Core economic statistics and the impacts of globalization.

Figure 2 – The seven dimensions of statistical capabilities



Source: [UNECE Statistical Capacity Development Strategy](#).

The CES Road Map on Statistics for Sustainable Development recommends the assessment of capacity-building needs at the country level. To support this, a [matrix on capacity development](#) has been prepared by the Steering Group's Task Team on Capacity Development. This is a practical tool in the form of a spreadsheet designed to match the needs of countries with providers of capacity-building activities. It covers capacity-building not just at the level of individual staff members and statistical domains but also in terms of organizational governance and management (legal frameworks, institutional structures, planning, user relations, etc.) and statistical infrastructure (methods, information technology, standards, etc.).

After an assessment of needs, the next step is to establish priorities for capacity-building, as available resources will not be sufficient to cover all needs. This will keep capacity-building focused and account for national circumstances.

### 3.3 National responses

To gain a deeper understanding of the challenges faced by ECE member States in measurement and monitoring progress towards the SDGs, a survey was carried out in early 2020. The survey was administered using an online data-collection platform. Respondents were given the choice of completing the survey using the online platform or an offline document version of the questionnaire. The survey covered:

- The role played by NSOs in measuring and monitoring the SDGs
- The approach taken to coordination and collaboration among stakeholders
- Challenges related to:
  - Technical and/or managerial capacity in statistical systems and processes
  - Modernization of statistical Systems and processes
  - Social statistics
  - Economic statistics
  - National accounts
  - Public-sector statistics
  - Environmental and natural resource statistics
  - Dissemination processes and systems
  - Relationships between NSOs and third parties involved in data collection
  - Financial and human resources.

In total, 51 of 56 ECE member States responded to the survey. In all cases, the responding individual was a representative of the NSO.

The document version of the survey questionnaire is found in the annex.

#### 3.3.1 Defining and supporting the role of National Statistical Offices – National responses

All 51 responding member States indicated that their NSO plays a role in measuring and monitoring progress toward the SDGs. The majority of member States (40 of 51) reported that the NSO had full responsibility for SDG measurement and monitoring, whether using data exclusively produced by the NSO or a combination of data produced by it and other national entities. The other 11 member States reported their NSO having partial responsibility for measurement and monitoring for those indicators that can be compiled using its own data, with some other agency (for example, a ministry of sustainable development or the prime minister's office) having responsibility for the remaining indicators.

#### 3.3.2 Coordination and collaboration – National responses

The strong role member States reported for NSOs in SDG measurement and monitoring was reflected in the equally strong role reported for them in ensuring coordination and collaboration among the stakeholders involved; 40 of 51 member States named the NSO as having lead responsibility for ensuring this coordination and collaboration. NSOs appear to be on solid legal ground in carrying out this role. More than two thirds (35 of 51) of member States reported the NSO having a legal mandate for this role stemming from its general legal mandate to coordinate the overall NSS (23 of 51) or from a specific mandate for coordination set out in a national sustainable development law or policy (8 of 51). Only 5 of 51 reported that the NSO role stemmed from a general, *de facto*, mandate for coordination. A small number did not report the basis on which the NSO carries out this role.

When asked to describe any special efforts taken to ensure coordination and collaboration among the stakeholders involved in measurement and monitoring (such as creation of data sharing platforms, national steering committees or staff exchanges), most ECE member States reported relevant initiatives, including those listed below.

- In **Belarus**, a Council for Sustainable Development has been established with the NSO (Belstat) as a member and head of the sub-group charged with coordination of indicators. To facilitate its activities, Belstat has created a [section devoted to the SDGs](#) on its official website, prepared a statistical road map for the compilation of the SDGs (based on the CES Road Map) and formed a working group on the use of remote-sensing technologies for SDG measurement and monitoring.
- In **Ireland**, the NSO has prepared a statistical road map and created an [SDG indicators data hub](#).
- **Bosnia and Herzegovina** has made use of the UNDP [Rapid Integrated Assessment](#) tool to facilitate the mainstreaming of SDGs into national and local plans.
- In **Canada**, a member of the NSO is co-located within the policy unit of the country's employment and social development ministry responsible for coordination of the SDGs.
- **Denmark** is establishing a partnership for SDG data comprising governmental agencies, civil society, academia, the private sector and other relevant stakeholders where information on data will be exchanged.
- In **Israel**, an inter-governmental committee was established for coordination and sharing of SDG-related data. Thanks to its work, Israel was able to develop new SDG indicators related to policy and legislation.
- **Kazakhstan** has created an intergovernmental coordination committee with five working groups chaired by the Deputy Prime Minister, with the Ministry of National Economy as the coordinating body.
- In **Kyrgyzstan**, the NSO is a member of five working groups created under the Vice-President to coordinate the national response to the 2030 Agenda; the NSO leads the working group on monitoring and evaluation.
- Interdepartmental working groups and committees of similar sorts have been created as well in Albania, Armenia, Azerbaijan, Croatia, Czechia, Georgia, North Macedonia, Russian Federation, Slovenia, Tajikistan and Turkey.
- In the Netherlands, the NSO works with municipalities to improve the quality and the timeliness of data for SDG measurement and monitoring through the [Urban Data Centres initiative](#) (Box 14).

#### *Box 14 – Urban Data Centres in the Netherlands*

Urban Data Centres emerged as a result of collaboration between Statistics Netherlands, which produces all official statistics in the country, and municipalities. The objectives of the centres are to broaden, deepen and improve data at local level by combining the knowledge, data and expertise of Statistics Netherlands and municipalities.

In order to deepen its interactions with citizens and adapt its services to users' needs, Statistics Netherlands took the initiative to transform its data production and collection systems to better focus on needs for policymaking at regional and local levels. The idea is that this will result in a broader and better basis for decision-making at municipal level and provide a solid basis for municipal forecasts. Since its start in 2016, the Urban Data Centres initiative has led to better understanding of cities and towns; more evidence-based municipal decision-making; improved potential for savings in city budgets; and a greater focus on harmonized, standardized and benchmarked local, regional, national and international data.

### 3.3.3 Modernizing statistical processes and systems – National responses

In general, member States reported facing considerable measurement and monitoring challenges with respect to the management of statistical processes and systems. The greatest challenge in this regard (reported by 29 of 51 member States) was lack of technical and managerial capacity. The most common concerns (reported by about half of these 29 member States) were:

- The lack of statistical expertise
- The need for improved information technologies (for example, data reporting platforms)
- The need for improved external management (for example, better coordination with external stakeholders).

The needs to improve communications and internal management (for example, management of survey operations) were of concern for about a quarter of the 29 member States reporting concerns about management of statistical processes and systems.

Many member States reported undertaking specific activities to address the lack of technical and managerial capacity, including:

- **Belarus** has developed a [national SDG reporting platform](#) with financial support from UNICEF and UNDP. The platform provides on-line access to both national and global SDG indicators where they are available. It also includes a link to [Belarus' roadmap for SDG statistics](#), which was developed following the CES Road Map. Similar platforms have also been created in, among others, [Albania](#), [Bulgaria](#), [Croatia](#), [France](#), [Georgia](#), [Hungary](#), [Kyrgyzstan](#), [Poland](#) (see Box 15) and [Slovakia](#).
- The national audit office of **Bosnia and Herzegovina** conducted a performance audit on the readiness of national institutions to respond to the 2030 Agenda.
- In **Spain and Turkey**, plans to address SDG measurement and monitoring have been integrated into the latest national statistical plans.
- The National Statistical Committee of **Kyrgyzstan** has undertaken a number of capacity-building exercises, including technical workshops on SDMX implementation and national reporting platforms for SDG data and metadata.

#### *Box 15 – Development of Poland's national SDG reporting platform*

In order to increase its technical capacity for SDG measurement and monitoring, Statistics Poland worked with the United States-based [Centre for Open Data Enterprise](#) (CODE) and the United Kingdom's Office for National Statistics to modernize its national SDG reporting platform, which it [relaunched](#) at the beginning of 2019. The changes introduced to the platform addressed the need for greater coherence with international reporting standards to facilitate data exchange between the country and international agencies. The new platform was created using open-source code made available by CODE and the Office for National Statistics, suitably adapted for use in the Polish context. The code for the Polish reporting platform has been [published online](#) and is also open for use by any country.

The need for modernization of statistical systems and processes<sup>34</sup> was the next most commonly reported challenge with respect to management of statistical processes and

<sup>34</sup> Modernization was defined in the survey questionnaire as the introduction of new systems and processes into statistical activities aimed at promoting use of new sources of data, new methods of collection, new approaches to dissemination and new models of management)

systems, with 28 member States citing this as a concern. The modernization challenges most often noted by these member States were:

- The need to implement open-data platforms
- The need for improved data-sharing protocols and systems
- The need to modify statistical processes and systems to permit use of big data and other modern data sources.

All these challenges were reported by one half to two thirds of the 28 member States citing modernization as a challenge. Modernization of governance and institutional frameworks, statistical standards and management systems were noted as challenges by about one third of the 28 countries. Actions taken in response included:

- **Albania, Armenia, Greece, Hungary, Kazakhstan and Ukraine** all reported implementing (or planning to implement) the GSBPM in response to the need to modernize statistical management processes.
- In **Bosnia and Herzegovina**, there is a plan to use modern data visualization tools – such as [this one](#) developed for the country's national population census – to present SDG indicators.
- **France** plans to use cash-register data to replace price surveys for the calculation of its consumer price index and is exploring the possibility of using mobile phone data for the development of indicators.
- In **Ukraine**, a new [national data platform](#) has been developed that has the potential to serve as a model for a reporting platform for the SDGs.

About one quarter (14) of responding member States noted concerns with relationships between NSOs and third parties involved in measurement and monitoring – such as the quality of formal and informal partnerships, data-sharing agreements, staff interchanges, workshops and committees. The most common concerns with these relationships (reported by about one third of the 14 countries) were their ad hoc nature and their lack of practical impact. For example:

- **Malta** reported that continuous efforts are made at all levels to enhance collaboration with stakeholders. The Maltese NSO provides technical support to help stakeholders their own data systems.
- In the **Republic of Moldova**, statistical literacy training has been organised with key data users.
- In accordance with its [national strategy for sustainable development](#), **Romania** is developing an action plan with clear roles and responsibilities for all actors involved with a grant from the European Union.

### 3.3.4 Strengthening basic statistics and accounts – National responses

Turning now to concerns related to the quality of basic statistics and accounts, the greatest concerns were expressed by member States with respect to environmental and natural resource statistics, with 23 expressing concern with these. Half of these 23 countries noted that environment and natural resource statistics cannot be adequately disaggregated to represent sub-populations – particularly with respect to gender – and that they do not cover variables relevant to SDG measurement and monitoring. Topics noted in particular as requiring improved data included marine resources, sustainable production and consumption, climate change, forests, desertification, land degradation, biodiversity, food waste, and pollution. Less common were concerns about the accuracy, coherence, frequency and timeliness of environment and resources statistics. For example:

- To address the need for improved environment and natural resource statistics, discussions are underway in **Germany** to introduce a system of accounts for ecosystems.



- Thanks to cooperation with the Ministry of Maritime Economy and Inland Navigation, the NSO of **Poland** developed the capacity to report SDG Indicator 14.4.1 on the proportion of fish stocks within biologically sustainable levels.
- The NSO of **Portugal** is working to calculate the country's material footprint (indicator 8.4.1) and food waste and loss indexes (12.3.1).
- The NSO of **Slovenia** is revising and extending its environmental-economic accounts, in particular for air emission accounts and forestry accounts, and undertaking a pilot project on food waste statistics.
- An environmental protection expenditure account is under development in **Ukraine**.
- In the **United Kingdom**, work is going on to achieve the goals outlined in the country's [2020 roadmap for the development of environmental-economic accounts](#).

Concerns with the quality of social statistics were the next most commonly reported by member States, with 20 of 51 citing this as an area of concern. As in the case of environment and natural resources, their main concern (reported by 15 of the 19 countries) was that social statistics cannot be adequately disaggregated to meet SDG measurement and monitoring needs. Lack of data on certain social variables was also noted by a number of countries; for instance, gaps were noted with respect to poverty, immigration, persons with disabilities and violence.

- The NSO of **Albania** noted publication of its first data on [income and living conditions](#) and modification of its information and communication technology survey to permit compilation of SDG Indicator 4.4.1 on information and communications technology skills amongst youth and adults.
- In **France**, efforts were noted to improve social statistics by preparing an [online portal for geographic visualization of statistics](#) and by adding a new module to the victimization survey that will permit improved measures of discrimination.
- Thanks to cooperation with the Ministry of Health, the NSO of **Poland** has developed data for SDG Indicator 3.3.1 on the number of new HIV infections.
- The NSO of **Slovenia** has conducted, among others, its first analysis of expenditure, poverty and social exclusion, as well as publishing its second set of data on activity limitations due to health problems.
- In **North Macedonia**, the Multiple Indicator Cluster Survey has been established and a gender-based violence survey will be conducted in 2020.

Concerns related to **economic** statistics were reported by about one quarter (13) of member States. Again, the most common concern was that economic statistics cannot be adequately disaggregated to meet SDG measurement and monitoring needs, a concern reported by 10 countries. Failure to cover key economic sectors and measure relevant variables were reported by about one half of the 13 countries. For example:

- In both **Kazakhstan** and **Malta**, efforts were noted to increase the use of administrative data in order to improve the quality of economic statistics.
- The NSO of **Poland** has cooperated with the National Bank of Poland to report data for SDG Indicator 9.3.2 on the proportion of small-scale industries with a loan or line of credit.
- **Uzbekistan** is working with the World Bank on the development of a new national statistics plan that will include provisions for the improvement of economic statistics.
- The NSO of **Slovenia** is undertaking a variety of efforts to improve the quality of economic statistics, including new data on passenger transport and the use of information and communication technologies.

Fewer than one quarter of respondents reported concerns with public-sector or national accounts statistics (9 and 6 member States, respectively). The main concern in both cases was that the data are not sufficiently detailed to meet measurement and monitoring needs.



The only action of significance reported with regard to improvement of national accounts statistics was the updating of the national accounts in Tajikistan to bring them into conformity with the 2008 System of National Accounts standard. No actions with regard to the improvement of public-sector statistics were reported.

### 3.3.5 Dissemination and communication – National responses

Concerns regarding dissemination processes and systems – such as data reporting platforms, metadata standards and communications protocols – were reported by 19 of 51 member States, with the most common concern (reported by just less than half of the 19) being that existing dissemination processes and systems do not cover all the variables required for measurement and monitoring. About one third of the 19 noted that dissemination processes and systems do not provide users with easy access to data in electronic format.

The main action taken by member States in response to the need to improve dissemination processes and systems has been the development of national SDG reporting platforms, several of which have been mentioned in the discussion above. In total, 43 countries in the region have developed such platforms [according to ECE](#).

### 3.3.6 Financial and human resources – National responses

With regard to the need for increased financial and human resources, 24 member States noted financial resources as a challenge, while 23 noted the same with regard to human resources. In both cases, a strong majority of member States reporting challenges felt the simple insufficiency of financial and/or human resources was the major challenge. One quarter of the 24 member States noted reliance on funding from international donors as a concern. About one quarter of the 23 member States reporting concerns about human resources felt that their staff were not adequately trained. Countries reported relatively few initiatives related to improving human and financial resources and most of those reported involved increased reliance on international agencies. Examples given included:

- **Kyrgyzstan** and **Tajikistan** both reported plans to take part in a [UNSD-United Kingdom Department for International Development sponsored project](#) to make SDG data open to the widest possible audience. The project is expected to improve both the number of indicators available and make them more accessible through development of national reporting platforms.
- **Uzbekistan** reported that it will prepare a Multiple Indicator Cluster Survey in 2020 and a population census in 2022 with the support of UNICEF and the United Nations Population Fund.

## 4 Conclusions and policy recommendations

This section presents the conclusions and recommendations drawn from the preceding review of challenges in SDG measurement and monitoring in the ECE region. The conclusions and recommendations are split into two groups, one responding to the top concerns of member States as revealed in the survey discussed in Section 3.3 and the other responding to concerns that, while not among countries' top priorities, can nonetheless be seen to be serious challenges to effective measurement and monitoring.

### 4.1 Conclusions and recommendations related to member States' top concerns

The results of the member State survey undertaken in support of this report (see Section 3.3) indicate that ECE member States' most important challenges related to SDG measurement and monitoring<sup>35</sup> are:

- Difficulties coordinating and collaborating among stakeholders<sup>36</sup>
- Inadequacy of human and financial resources
- Gaps in required data
- Difficulties in disaggregating statistics to reveal trends in specific sub-populations (for example, women and the poor).

The above were mentioned by, respectively, 25, 18, 12 and 12 of the 51 member States that responded to the survey.

#### 4.1.1 Coordination and collaboration

Looking more closely at the countries that mentioned coordination and collaboration as a challenge, there appears to be a difference between those in which the NSO has full responsibility for SDG measurement and monitoring and those where the NSO has only partial responsibility. Of the nine countries in which the NSO had partial SDG measurement and monitoring responsibility, two thirds (six) reported challenges with respect to coordination and collaboration. Of the 38 countries in which the NSO had full responsibility, only 45 per cent (17) reported coordination and collaboration challenges. At the same time, there was little difference between the number of countries reporting these challenges where the NSO was the lead agency for ensuring coordination and collaboration and those where this role was played by another agency (in both cases, about half noted challenges). This suggests there may be some advantage in terms of coordination and collaboration in giving the NSO full measurement and monitoring responsibility but that it does not matter which agency actually leads on coordination and collaboration. Intuitively, this stands to reason, as there are likely fewer stakeholders involved in measurement and monitoring when the NSO has full responsibility, making it easier for whatever agency is charged with coordination and collaboration to fulfil its role. Still, giving the NSO full responsibility does not guarantee a well-coordinated and collaborative effort, as many countries with fully responsible NSOs still reported challenges in this regard.

Not surprisingly, there is a clear link between challenges with respect to coordination and collaboration and failure to name any agency as lead on coordination and collaboration. In

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<sup>35</sup> At the end of the survey, respondents were asked to rank the three most significant challenges in measuring and monitoring progress toward the SDGs.

<sup>36</sup> Stakeholders were defined in the survey to include all entities (public, private or not-for-profit) within or outside of government involved in collecting or compiling the data required for measuring and monitoring progress toward the SDGs.

the handful of countries (five in total) in which no agency was named as lead, all but one (80 per cent) reported challenges with respect to coordination and collaboration.

From the above, three things may be concluded. First, naming some agency – whether it is the NSO (as called for in the CES Roadmap) or another agency – as lead on coordination and collaboration is essential. Coordination and collaboration do not happen on their own; they require dedicated effort. Second, it does not appear to matter whether the lead role on coordination and collaboration is played by the NSO or another agency; the rate of success is about the same in either case. Finally, it does appear to be easier to succeed in coordination and collaboration in cases where the NSO has full responsibility for SDG measurement and monitoring, though this is not a guarantee of success in this regard.

**Recommendation #1** – *Countries should ensure an appropriate agency is assigned to the lead role for ensuring coordination and collaboration in SDG measurement and monitoring. Ideally, this should be the NSO, as called for in the CES Road Map, though another relevant agency could take on this role if the NSO cannot do so alone). Countries should expect that this agency's role (whether it is the NSO or another) will be easier in cases where the NSO has full responsibility for measurement and monitoring. In other cases, coordination and collaboration will be more difficult (due to the larger number of stakeholders involved) and, therefore, the effort required to succeed in it should be expected to be greater.*

#### 4.1.2 Financial and human resources

##### *Adequate resources are needed to modernize and build technical and managerial capacity*

Turning to financial and human resources, there is a clear (and expected) correlation between resource adequacy and NSO needs for increased technical and/or managerial capacity and modernization. Both technical and managerial capacity and modernization require considerable financial and human resources, so one expects to see challenges with respect to the latter correlated with challenges related to the former. This is, indeed, what the survey results show. Of the 16 countries that reported challenges with both financial and human resources, 13 (81 per cent) also noted the need for increased technical and managerial capacity and modernization.

At the same time, adequate human and financial resources do not mean that the need for increased technical and managerial capacity or modernization disappear. Of the 20 countries that reported adequacy of both human and financial resources, 8 reported the need for increased technical and managerial capacity at the NSO and 7 reported the need for the NSO to modernize.

**Recommendation #2** – *Countries should ensure adequate human and financial resources are available for SDG measurement and monitoring. They should recognize that improved technical and managerial capacity and modernization of NSO will be particularly challenging in the absence of sufficient resources. At the same time, inadequate human and financial resources are not the only impediments to improved technical and managerial capacity and modernization. In countries where human and financial resources are adequate, special attention should be paid to determining and removing non-resource impediments to improved technical and managerial capacity and modernization.*

##### *NSOs cannot meet the measurement and monitoring challenge on their own*

The survey results also reveal an arguably unexpected correlation between countries that noted data gaps as a concern and that also gave their NSO full responsibility for SDG measurement and monitoring. All of the 12 countries for which data gaps were a concern had NSOs with full measurement and monitoring responsibilities. This outcome could be explained on the grounds that the data needs for measurement and monitoring are broad

and deep and that even the most sophisticated NSO could not hope to meet them all on its own. The finding is worrying, as it suggests that some NSOs may be having difficulty reaching beyond their own databases to obtain the data they require for measurement and monitoring from other organizations. This is consistent with the finding that cooperation and collaboration is the greatest challenge to measurement and monitoring in the ECE region.

**Recommendation #3** – *Countries in which overall data availability for SDG measurement and monitoring is known to be low and in which mechanisms for assuring inter-agency coordination and collaboration are weak should devote additional efforts to coordination and collaboration to ensure the NSO can access all available data for measurement and monitoring; for example, by creating inter-institutional working groups. If these additional efforts fail, it may be preferable to give the NSO only partial responsibility for measurement and monitoring rather than to frustrate its efforts to report on indicators it is unable to obtain data for.*

Another arguably unpredictable result revealed by the survey is that all of the 12 countries that reported concerns with disaggregating statistics to reveal trends in specific sub-populations were countries in which the NSO had full responsibility for measurement and monitoring. Given that NSOs are specialized in the survey and analytical methods required to permit disaggregation, it might have been expected that countries where NSO were fully in charge of measurement and monitoring would face fewer challenges on this front. This does not seem to be the case, however. Again, a plausible explanation for this is the fact that no NSO can possibly compile all of the data required for measurement and monitoring. It is again worrying, though, since it is another indication that NSOs have difficulty obtaining the required data for measurement and monitoring from others.

**Recommendation #4** – *Countries in which the NSO has full responsibility for measurement and monitoring must ensure the NSO has access to all data required to disaggregate statistics to reveal trends in specific sub-populations. This may require that additional effort be devoted to improving NSO access to administrative and non-traditional data sources and harmonizing definitions among data sources.*

## 4.2 Conclusions and recommendations related to other challenges

### *The range of global and regional responses is impressive*

The first conclusion that follows from the review of global and regional responses to SDG measurement and monitoring challenges in sections 3.1 and 3.2 is simply that these responses are impressive in terms of their breadth, depth and quality. Unlike in the case of the Millennium Development Goals, when measurement and monitoring were an afterthought and, as a result, reporting on progress against the goals was not as robust as it should have been, the national, regional and global statistical communities have all risen admirably to the challenge of measurement and monitoring in the case of the SDGs. This is not to say that the situation is perfect. As the member State survey revealed clearly, challenges remain on many fronts. Nonetheless, NSOs and NSSs are benefiting from a far greater level of support from regional and global bodies in the context of the 2030 Agenda than they did for the Millennium Development Goals. This bodes well not just for the realization of the 2030 Agenda's ambitions, but also for the future of cooperation and mutual support between the policy agencies of governments and their statistical counterparts.

**Recommendation #5** – *All NSOs and other members of NSSs in the ECE region should familiarize themselves with the range of supports for SDG measurement and monitoring available to them from ECE and other regional and global organizations. This report covers the most important of these, but it should only be seen as a starting point. Far more initiatives, programmes and policies exist than could be covered here.*

Thus, NSOs and other members of NSSs are encouraged to explore on their own the supports that are available from regional and global organizations.

**Recommendation #6** – ECE should encourage all regional and global organizations with initiatives, programmes or policies in place that, whether explicitly or indirectly, support SDG measurement and monitoring to ensure their efforts are well-known among NSOs and NSS members in all countries of the ECE region (and, indeed, all other regions). A step in this direction could be for ECE to encourage other United Nations regional commissions to consider preparing reports similar to this one. A complete set of such reports could serve as the basis for constructing an online warehouse of information on supports for measurement and monitoring that NSOs and NSS members could draw upon when they require assistance.

## 4.2.1 Defining and supporting the role of national statistical offices

### *NSOs require support in coordination and collaboration*

When it comes to defining and supporting the role of NSOs, regional and global organizations are clear in their position that NSOs must be at the centre of SDG measurement and monitoring. This is acknowledged in the text of the 2030 Agenda itself. While such strong support for the role of NSOs is appropriate and welcome, it must also be tempered with a dose of realism regarding what NSOs can and cannot achieve. The results of the member State survey show that NSOs are struggling in many ways (some predictable and others less so) to fulfil the role they have been given.

**Recommendation #7** – ECE should deepen its engagement with national governments in the region to support NSOs more fully in addressing the challenges they face in fulfilling their central roles in SDG measurement and monitoring. Particular attention should be paid to challenges in coordinating and collaborating with the other stakeholders involved, as above all else, NSOs report they face challenges on this front. As the discussion above notes (see recommendations 1-4), it is likely that coordination and collaboration challenges are preventing NSOs from fully meeting their expectations (for example, in providing data disaggregated for specific sub-populations).

## 4.2.2 Modernization

### *Efforts are needed to move beyond the promise of modernization*

Though modernization of statistical process was noted as a challenge for SDG measurement and monitoring by about half of member States in the survey, it did not rank among the challenges countries were most concerned about. It is unclear whether this is because countries mostly know how to overcome the modernization challenges they face or because they do not see modernization as a top priority in terms of SDG measurement and monitoring. Certainly, regional and global organizations have done an excellent job of spelling out the benefits – indeed, the imperative – of modernization in the context of measurement and monitoring. The case made for modernization in *A World that Counts*, among others, is lucid and compelling. Yet when asked in the survey to provide examples of specific modernization initiatives taken, other than implementation of GSBPM, few countries had much to report. In particular, no significant mention was made of using a non-traditional source of data to meet the challenge of measurement and monitoring.

**Recommendation #8** – ECE should work with other regional and global organizations to assist NSOs in moving beyond the promise of modernization – in particular, the promise of using non-official data sources (for example, big data) – to the realization of its benefits. Countries with well-funded, large statistical systems are likely to be ahead of those with smaller, more resource-constrained systems. ECE should engage with



*member States that have achieved positive outcomes through modernization to transfer the lessons learned to countries with less capacity to modernize all on their own.*

### 4.2.3 Strengthening basic statistics and accounts

*Global and regional leadership is needed on working beyond traditional silos*

In the case of strengthening basic statistics and accounts, the regional and global communities have a great deal to offer, particularly in the areas of environmental and gender statistics that are both relatively under-developed and also key to SDG measurement and monitoring. Yet, in spite of the cross-cutting nature of the 2030 Agenda itself, much of the work done in the statistical domain within regional and global organizations remains siloed within traditional organizational structures. This is, arguably, not the best example to set for countries faced with the challenge of integrated measurement and monitoring.

**Recommendation #9** – *ECE should demonstrate leadership in the domain of SDG measurement and monitoring by working across traditional structures to support member States. ECE could, for example, undertake to prepare a handbook on the compilation of disaggregated statistics for SDG measurement and monitoring drawing on expertise and examples from all Divisions. Such a handbook could be of great value to member States, as it would address one of the major challenges they report facing measurement and monitoring. Successfully preparing such a handbook with pan-ECE contributions would demonstrate to member States the value of coordination and collaboration in addressing the complexities of measurement and monitoring.*

### 4.2.4 Dissemination and communication

*Global and regional leadership is needed on common reporting approaches*

With regard to dissemination and communication, here there is a compelling case for a high degree of standardization across member States, regional and global organizations. It would serve no one well if 56 different national reporting standards were created to support SDG measurement and monitoring when a single standard, suitably adapted to meet country-specific needs where required, could suffice.

**Recommendation #10** – *ECE should work with other regional and global organizations to develop a single, flexible SDG reporting standard (ideally based upon the existing SDMX standard). This work could build upon the initiative already taken by the United States and the United Kingdom to share the code for their own platforms in the open-source community.*

### 4.2.5 Human and financial resources

*The promise of additional funding must be realized*

Finally, human and financial resources are, as seems always to be the case, a concern for many countries. In spite of the Dubai Declaration's clear call to mobilize funding for SDG measurement and monitoring, no global funding mechanism is yet in place. Regrettably, the pandemic of 2020 may well make it more difficult for the foreseeable future to create such a mechanism.

**Recommendation #11** – *ECE should, to the fullest extent possible, act upon the Dubai Declaration's call for increased funding for measurement and monitoring and should encourage other regional and global institutions to do so as well. In addition, low-cost means should be found to improve the skills and knowledge of member State experts required for measurement and monitoring. Emphasis should be placed on on-line learning, as this is inexpensive, adaptable, does not require travel and, if*



*done well, highly effective. More traditional forms of capacity building – workshops, expert group meetings, conferences – should also be pursued. ECE is well regarded for its capacity to organize and deliver these kinds of events and this capacity should be leveraged and strengthened to the extent possible. At the same time, ECE should actively explore new ways to deliver this capacity building that are less expensive, more flexible and fully exploit modern electronic communications potential.*