



Economic Commission for Europe**Conference of European Statisticians****Sixty-eighth plenary session**

Geneva, 22-24 June 2020

Item 9 of the provisional agenda

Coordination of international statistical work in the United Nations Economic Commission for Europe region: outcomes of the recent in-depth reviews carried out by the Bureau of the Conference of European Statisticians**In-depth review of the role of the statistical community in climate action – short version¹****Note by the Steering Group on climate change-related statistics and the Secretariat***Summary*

This document is a short version of the in-depth review paper on the role of the statistical community in climate action. The in-depth review was mandated by the Bureau of the Conference of European Statisticians (CES) to examine the role of the statistical community in providing data and statistics for climate action. The document presents an analysis of the policy frameworks in place and describes identified issues and challenges. The last section summarises the discussion and decision by the Bureau in February 2020.

This short version has been prepared for translation purposes. It does not include the description of multiple international activities and country practices regarding the involvement of national statistical offices in climate change-related statistics, but only lists the organizations and countries covered in the respective sections of the full version of the paper. These sections and the list of bibliographic references can be found in the full version of the paper, available on the web page² of the CES 2020 plenary session.

¹ This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

² <http://www.unece.org/index.php?id=53381>



I. Introduction

A. Background

1. The Bureau of the Conference of European Statisticians (CES) regularly reviews selected statistical areas in depth. The aim of the reviews is to improve coordination of statistical activities in the UNECE region, identify gaps or duplication of work, and address emerging issues. The review focuses on strategic issues and highlights concerns of statistical offices of both a conceptual and a coordinating nature.

2. In February 2019, the CES Bureau decided to review in-depth the role of statistical community in climate action. The CES Steering Group on climate change-related statistics volunteered to prepare the document providing the basis for the review. The Steering Group is chaired by Luxembourg and has the following members: Italy, Kyrgyzstan, Mexico, the Netherlands, Russian Federation, Sweden, the United Kingdom, the European Environment Agency (EEA), Eurostat, the Food and Agriculture Organization of the United Nations (FAO), the International Energy Agency (IEA), United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), and Midsummer Analytics.

3. In addition, the review benefits from contributions by experts attending 2019 UNECE Expert Forum for producers and users of climate change-related statistics, and the following organizations: International Monetary Fund (IMF), International Union for Conservation of Nature (IUCN), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Environment Programme (UNEP), United Nations Statistics Division (UNSD), World Health Organization (WHO), and World Meteorological Organization (WMO).

4. The Conference of European Statisticians has been working since 2011 to make official statistics more useful for climate analyses and to promote the involvement of national statistical offices (NSOs) in greenhouse gas (GHG) inventories. The Steering Group established in 2014 has brought together experts to foster the advancement of the work in this area. It has guided the development of methodologies and advocacy and has led to increased coordination of work at the international level.

5. According to the latest survey from 2016, many NSOs were implementing the CES Recommendations on Climate Change-Related Statistics (UNECE, 2014) and had concrete plans on how to improve further.

6. Although the NSOs are making progress, the complexity of issues related to climate change has been continuously increasing as well. The Paris Agreement has introduced new reporting requirements, defined by its 2018 implementation rules adopted in Katowice. The policymakers, civil society and researchers increasingly look into socio-economic drivers and impacts of climate change. The number of stakeholders in climate action is growing, and many of them use official statistics. To be able to anticipate and address the future information demands, producers of official statistics will need to actively partner with policymakers, scientists, NGOs and international organizations.

7. The paper examines the recent developments as a basis for reassessing the role of the statistical community in this changing, multi-stakeholder environment. The paper aims to answer the following questions:

(a) What role do NSOs have in the reporting for the Paris Agreement? Are there any new data demands? What are they?

(b) How can we promote what the NSOs have to offer? What more can we do to establish active partnerships between policymakers, statisticians and scientists?

(c) How do international organizations support the producers of official statistics in meeting the information needs? What else could they do?

8. The paper also provides a unique overview of activities of international organizations and countries to respond to the growing information demand to address climate change.

B. Sources of information

9. Section II of the paper is based on the materials shared with the Steering Group by the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) and presented during the 2019 UNECE Expert Forum for Producers and Users of Climate Change-Related Statistics, and publicly available materials as referenced in the text.

10. Section III of the full version of the paper is prepared based on direct contributions from organizations and desk research of available materials. The following organizations contributed directly: Eurostat, European Environment Agency (EEA), International Union for Conservation of Nature (IUCN), International Monetary Fund (IMF), World Meteorological Organization (WMO), World Health Organization (WHO), United Nations Statistics Division (UNSD), United Nations Environment Programme (UNEP), United Nations Economic Commission for Latin America and the Caribbean (ECLAC), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and World Meteorological Organization (WMO). Description of the activities of the remaining organizations is based on publicly available materials as referenced in the text and listed in the bibliography. The descriptions of activities reflect the best understanding of the authors of the papers and are not exhaustive but rather aim to show the scope and variety of international activities in this area.

11. Section IV of the full version of the paper is based on a comprehensive survey conducted by the Steering Group in 2016, inputs on new developments collected through the 2019 Expert Forum and contributed by the countries represented in the Steering Group.

12. Section V is based on the analysis by the Steering Group and its secretariat and inputs from experts attending 2019 Expert Forum (UNECE, 2019b).

II. Scope/definition of the statistical area covered

A. Climate change-related statistics

13. Climate change is defined in the Article 1 of the United Nations Framework Convention on Climate Change (UNFCCC) as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable time periods”. In addition, the same article also defines the term climate system, which means “the totality of the atmosphere, hydrosphere, biosphere and geosphere and their interactions.”

14. The *CES Recommendations on Climate Change-Related Statistics* (UNECE, 2015) have defined the scope of climate change-related statistics as: “Environmental, social and economic data that measure the human causes of climate change, the impacts of climate change on human and natural systems, the efforts of humans to avoid the consequences as well as their efforts to adapt to the consequences.”

15. The CES Recommendations underlined that climate change statistics more generally would also include data that measure climate and weather directly; for example, temperature and precipitation. These statistics are frequently, but not always, collected and analysed by agencies outside of the statistical system; for example, by meteorological organizations.

16. The focus of official statisticians is on the areas where the links between human and natural systems are most important in terms of understanding climate change – both from the point of view of its causes and its impacts. Evaluation of impacts requires interpretation and judgement in some cases. It is not the task of NSOs to assess the impacts, but to provide the data for doing so.

17. To narrow the scope in the context of the statistical system, the CES Recommendations focus on environmental, social and economic statistics that measure climate change-related:

- (a) Emissions: GHG emissions and their human causes;
- (b) Drivers: human causes of climate change that deal with sources of emissions;
- (c) Impacts: impacts of climate change on human and natural systems;
- (d) Mitigation: efforts of humans to decrease emissions and avoid the consequences;
- (e) Adaptation: efforts to adapt to the consequences.

B. Climate action

18. In this paper, “climate action” means efforts to reduce greenhouse gas emissions and strengthen resilience and adaptive capacity to climate-induced impacts in line with the commitments of the Paris Agreement and the 2030 Agenda for Sustainable Development.

C. Statistical community

19. In this paper, “statistical community” means the community of official statisticians, that is, producers of official statistics in countries and international and regional organizations that support them or produce official statistics themselves. The statistical community would therefore include:

- (a) National statistical offices;
- (b) Other producers of official statistics in countries (members of national statistical systems), for example, statistical entities in the ministries of environment, agriculture, energy and others.
- (c) United Nations Statistics Division and statistical divisions of the United Nations regional commissions;
- (d) Statistical departments or divisions of United Nations specialized agencies, funds and programmes;
- (e) Statistical departments and offices of other intergovernmental, international and supranational agencies.

III. Policy framework for climate action

A. Paris Agreement

1. Background and goals

20. In 1992, most countries of the world recognized that climate change is a common concern of humankind and joined the United Nations Framework Convention on Climate Change (UNFCCC, hereafter also referred to as the Convention) aiming to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system. The Convention required the industrialized countries (Annex I parties) to regularly report their greenhouse gas emissions and adopt policies on limiting them but did not have binding limits on emissions for individual countries.

21. In 1997, the Kyoto Protocol was adopted as an extension to the Convention. The Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing the Annex I countries to limit and reduce greenhouse gases (GHG)

emissions in accordance with agreed individual targets. The Kyoto Protocol entered into force in 2005.

22. At the 21st Conference of the Parties to the Convention (COP 21) in Paris in 2015, 195 countries adopted the agreement on accelerating and intensifying the efforts to combat climate change. The Paris Agreement aims to:

“strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

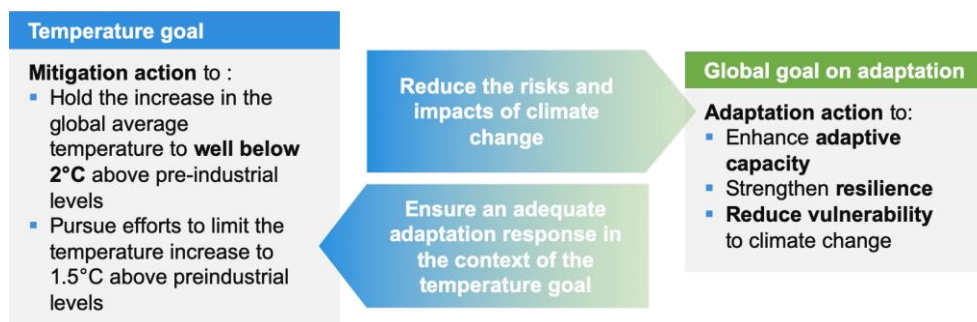
(a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”

Figure 1.

Goals of the Paris Agreement



Source: Adapted from UNEP (2017).

23. The Paris Agreement requires all Parties to put forward their best efforts to address climate change through “nationally determined contributions” (NDCs) and to strengthen these efforts in the years ahead. This includes the requirement that all Parties regularly report on their emissions and implementation efforts. In their NDCs, countries can include domestic adaptation goals, which together with national adaptation plans (NAPs) allow the countries to design and adjust their adaptation trajectories as their needs evolve and as progress is evaluated over time.

2. Institutional arrangements for the climate change intergovernmental process

24. The Convention, the Kyoto Protocol and the Paris Agreement define the institutional arrangements for the climate change intergovernmental process. The arrangements include the following bodies:

(a) A supreme governing body: the Conference of the Parties (COP) for the Convention, the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), and Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA);

(b) A process management body: the Bureau of COP, CMP and CMA;

(c) Subsidiary bodies:

(i) Subsidiary Body for Scientific and Technological Advice (SBSTA);

(ii) Subsidiary Body for Implementation (SBI);

(iii) Other ad hoc subsidiary bodies established by COP, CMP, or CMA;

(d) Technical subsidiary bodies with limited membership (referred to as the constituted bodies), such as the Adaptation Committee, Adaptation Fund Board, Advisory Board of the Climate Technology Centre and Network, Executive Board of the Clean Development Mechanism, Compliance Committee, Consultative Group of Experts, Executive Committee of the Warsaw International Mechanism for Loss and Damage.

(e) The UNFCCC Secretariat (UN Climate Change);

(f) Entities entrusted with the operations of the financial mechanism: the Global Environment Facility (GEF) and the Green Climate Fund (GCF).

3. Reporting requirements

25. At the 24th Conference of the Parties (COP 24), which took place in Katowice, the Parties adopted the Paris Agreement Work Programme operationalizing the Paris Agreement, including the reporting requirements described in Decision 18 on modalities, procedures and guidelines (MPGs) for the transparency framework for action and support.³

26. The reporting framework of the Paris Agreement is called an “enhanced transparency framework”. Under this framework, the Parties are required to submit Biennial Transparency Reports with four major components:

(a) National inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases;

(b) Information necessary to track progress made in implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement;

(c) Information related to climate change impacts and adaptation under Article 7 of the Paris Agreement;

(d) Information on financial, technology development and transfer and capacity-building support provided and mobilized (by developed countries) and needed and received (by developing countries) under Articles 9–11 of the Paris Agreement.

27. The reports submitted by countries will be then reviewed by international experts and later subjected to multilateral considerations.

28. The first component of the enhanced transparency framework – the inventory report of greenhouse gas emissions – builds on the requirements for reporting of the Kyoto protocol, called “monitoring, reporting and verification” (MRV). The main difference is that the enhanced transparency framework covers all the Parties to the Paris Agreement while the reporting requirements for the Kyoto Protocol were different for Annex I and non-Annex I Parties. The mechanism for the Paris Agreement is however more flexible – all countries have to set up a national entity reporting on emissions, but the countries with lower capacity may report on fewer gases if needed. The countries that are not part of the Paris Agreement will have to continue report under MRV.

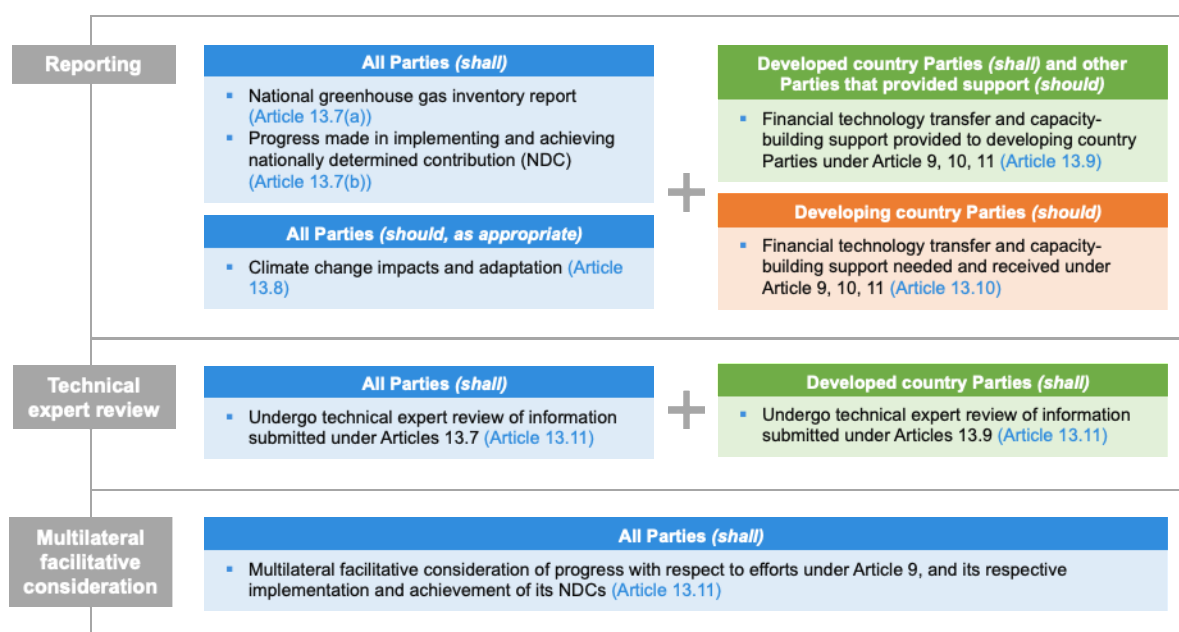
29. Under the Paris Agreement, all Parties will need to report seven gases (carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃) but those developing country Parties that need flexibility in the light of their capacities with respect to this provision have the flexibility to instead report at least three gases (CO₂, CH₄ and N₂O) as well as any of the additional four gases (HFCs, PFCs, SF₆ and NF₃) that are included in the respective Party’s NDC or have been previously reported. Moreover, all parties will need to use the same IPCC guidelines to estimate their emissions in a consistent and comparable way. The parties are required to use the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2006) until the subsequent version of refinement of the Guidelines is agreed by the Conference of the Parties. Countries are also encouraged to use the 2013

³ [FCCC/PA/CMA/2018/3/Add.2](#)

Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (IPCC, 2013).

Figure 2.

Enhanced transparency framework under Article 13 of the Paris Agreement



* The transparency framework shall provide the flexibility in the implementation of the provisions of this Article to those developing country Parties that need it in the light of their capacities (Article 13.2);

* The transparency framework shall recognize the special circumstances of the least developed countries and small island developing States (Article 13.3).

Source: Adapted from UNFCCC.

30. The information provided by the Parties through the enhanced transparency framework will inform the periodic “global stocktake” – a collective assessment of progress towards achieving the purpose of the Paris Agreement and its long-term goals. The first global stocktake will take place in 2023 and then every 5 years.

31. COP 24 requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop the following resources enabling the reporting for consideration and adoption by the Conference of the Parties in November 2020:

- (a) Common reporting format tables and common tabular formats for reporting of:
 - (i) GHG information;
 - (ii) Information to track progress made in implementing and achieving its NDC; and
 - (iii) Information on financial, technology and capacity buildings provided and mobilized, and needed and received.
- (b) Outlines of the biennial transparency report, national inventory document and technical expert review report; and
- (c) A training programme for technical review experts.

B. 2030 Agenda for Sustainable Development

32. The 2030 Agenda for Sustainable Development called for “taking urgent action to combat climate change and its impacts”, and “promoting mechanisms for raising capacities for effective climate change-related planning and management”, which is included in goal 13, encompassing the following targets:

- (a) 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries;
- (b) 13.2: Integrate climate change measures into national policies, strategies and planning;
- (c) 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning;
- (d) 13.A: Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible;
- (e) 13.B: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.

33. Tackling climate change is also linked to Goal 12: “Ensure sustainable consumption and production patterns”; Goal 9: “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation” and Goal 7: “Ensure access to affordable, reliable, sustainable and modern energy for all”.

C. Sendai Framework for Disaster Risk Reduction 2015-2030

34. The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) was adopted at the Third United Nations World Conference in Sendai, Japan, in March 2015. It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations from July 2014 to March 2015, supported by the United Nations Office for Disaster Risk Reduction (UNDRR) at the request of the UN General Assembly.

35. The Sendai Framework has seven global targets. These targets are measured at the global level with 38 indicators. National targets and indicators will contribute to the achievement of the outcome and goal of the present Framework. The seven global targets are:

- (a) Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015;
- (b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015;
- (c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030;
- (d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030;
- (e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020;
- (f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;
- (g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

36. On 3 June 2015, the United Nations General Assembly adopted the establishment of the Open-ended Intergovernmental Expert Working Group on indicators and terminology relating to disaster risk reduction (OIEWG) via resolution 69/284. In three meetings held

between September 2015 and November 2016, OIEWG developed the set of indicators to measure global progress in the implementation of the Sendai Framework and agreed on the related terminology.

37. The report of Open-ended Intergovernmental Expert Working Group⁴ (United Nations, 2016):

(a) Recommends 38 global indicators to measure the seven global targets of the Sendai Framework;

(b) Recommends definitions for important terms and suggests a classification of hazards.

38. Hazards include (as mentioned in the Sendai Framework) biological, environmental, geological, hydro-meteorological and technological processes and phenomena.

39. Addressing hydro-meteorological hazards (and their impacts) is key for climate action.

40. Hydro-meteorological hazards are of atmospheric, hydrological or oceanographic origin. Examples are tropical cyclones (also known as typhoons and hurricanes), floods including flash floods, drought, heatwaves and cold spells and coastal storm surges. Hydro-meteorological conditions may also be a factor in other hazards such as landslides, wildland fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material.

41. Progress in implementing the Sendai Framework is assessed annually by UNDRR. Analysis and trends are presented in the Sendai Framework online monitoring tool⁵ (Sendai Monitor) based on information provided by countries. The 2019 Global Assessment Report of UNDRR offers an update on progress made in implementing the outcome, goal, targets and priorities of the Sendai Framework and disaster-related Sustainable Development Goals. It furthermore provides an analysis of how risk science is changing, presents areas for additional endeavour, and explores aspects of understanding and managing systemic risk.

IV. Overview of international activities in the area

42. In the full version of the paper, this section describes the key activities of international organizations involved in producing or using statistics and data for climate action through being a producer of climate data and climate-change related statistics, supporting producers of climate change-related statistics or being a user of climate change related statistics.

43. The Steering Group has purposefully decided to include in this section also activities, which are not statistical, but may have impact on official statistics, to show a big picture of climate change data and statistics. Another purpose is to inform the statistical community about the activities of international organizations directed at national institutions with whom national statistical offices may need to coordinate.

44. As often one organization can play more than one role, the section has been organized by an organization type rather than by its role related to statistics and data for climate action.

45. The following organizations are covered in the full version of the paper:

(a) United Nations Secretariat:

(i) United Nations Statistics Division;

(ii) United Nations Economic Commission for Europe;

⁴ [A/71/644](#)

⁵ <https://sendaimonitor.unisdr.org/>

- (iii) United Nations Economic Commission for Latin America and the Caribbean;
- (iv) United Nations Economic and Social Commission for Asia and the Pacific;
- (v) United Nations Environment Programme;
- (vi) United Nations Office for Disaster Risk Reduction;
- (b) Other organizations within the United Nations System
 - (i) Food and Agriculture Organization of the United Nations;
 - (ii) Intergovernmental Panel on Climate Change;
 - (iii) International Monetary Fund;
 - (iv) United Nations Development Programme;
 - (v) United Nations Framework Convention on Climate Change;
 - (vi) The World Bank Group;
 - (vii) World Health Organization;
 - (viii) World Meteorological Organization.
- (c) Other international and supranational organizations:
 - (i) Directorate-General for Climate Action of the European Union;
 - (ii) Eurostat;
 - (iii) European Environment Agency;
 - (iv) International Energy Agency;
 - (v) International Union for Conservation of Nature;
 - (vi) Organization for Economic Cooperation and Development.
- (d) Other types of organizations:
 - (i) Research organizations and collaborations;
 - (ii) Think-tanks;
 - (iii) Non-profit and non-governmental organizations;
 - (iv) Development cooperation agencies.

V. Country practices

46. This section of the full version of the document describes country practices regarding the involvement of national statistical offices in climate change-related statistics.

47. Subsection A summarizes the results of a comprehensive survey conducted by the Steering Group in 2016. The survey collected information on countries' progress and plans in developing their statistics to inform climate policy and research. The survey was sent out to NSOs and institutions responsible for GHG inventories.

48. The Steering Group decided not to repeat the survey among all CES members for the purpose of this paper. Firstly, because in terms of the involvement of NSOs in greenhouse gas inventories, there would not probably be enough new information compared to 2016 to justify the response burden. Secondly, any potentially new arrangements for reporting on the Paris Agreement might not be yet in place in all countries as the Paris Agreement Working Plan was approved at the end of 2018. Finally, the analysis conducted in this paper will contribute to an improved understanding of what NSOs can contribute to the new current of data and statistics for climate action and inform the Steering Group whether any changes in the progress survey questionnaire are needed.

49. To account for new developments, the Steering Group collected inputs during the 2019 Expert Forum. Also, the countries represented in the Steering Group contributed their own recent experiences and reached out to NSOs' counterparts on the policy side. This information is presented in subsection B of the full version of the paper and covers the following countries:

- (a) France;
- (b) Italy;
- (c) Luxembourg;
- (d) Mexico;
- (e) Netherlands;
- (f) Sweden;
- (g) United Kingdom.

VI. Issues and challenges

A. Climate change is a fundamental challenge and a global policy priority

50. Combatting climate change and its impacts is one of the sustainable development goals – Goal 13 – but it is intrinsically linked to all other 16 Goals of the 2030 Agenda for Sustainable Development. If humanity fails to halt climate change and put in place measures reducing its impacts, the remaining goals cannot be achieved.

51. As climate change is affecting all areas of human activity, climate change considerations are increasingly mainstreamed into all areas of development work. The number of international organizations, researchers, non-governmental organizations working on issues of climate change across all thematic areas reflects the recognition of the importance and multidimensionality of this challenge.

52. Figure 3 presents the number of news and events per each Sustainable Development Goal registered through the SDG Knowledge Hub⁶ of the International Institute for Sustainable Development as of January 2020. The Knowledge Hub is an online resource centre for news and commentary regarding the implementation of the 2030 Agenda, working since 2016. The values on the chart can be a proxy for the number of developments in the area of climate action.

53. The climate-related work of international organizations often includes activities related to data, statistics and measurement, as presented in section III of this paper. This overview is not exhaustive, but it is in itself an evidence of the complexity of the landscape in which the statistical community operates.

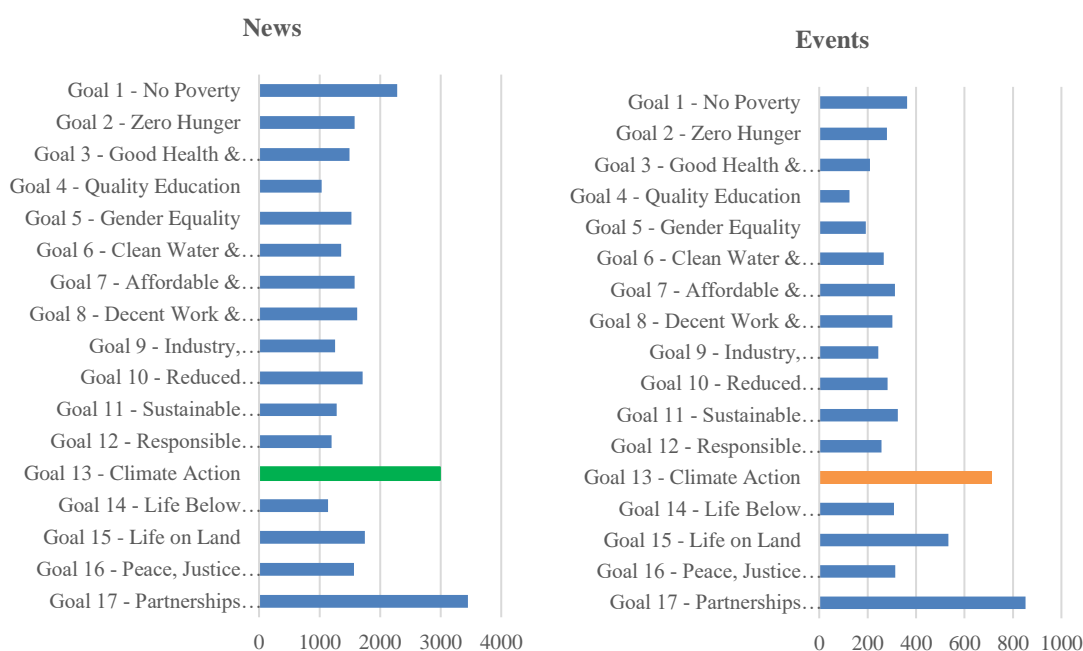
54. Many international organizations are involved in the production and use of climate change-related information, with their expert networks and national counterparts. The work of international organizations (and their national counterparts) could be grouped as follows (groups are not mutually exclusive):

- (a) Custodian of the global policy process: UNFCCC collects data and information that feeds directly into the global political process;
- (b) Production and dissemination of data on climate and earth physical systems: e.g. WMO, NASA, Copernicus⁷;
- (c) Production and dissemination of climate change-related environmental data, statistics and indicators: e.g. UNEP, IUCN, EEA or FAO.

⁶ See: <https://sdg.iisd.org/>

⁷ NASA and Copernicus are not covered by the paper.

Figure 3
The number of news articles and events on the SDG Hub Portal by an SDG goal



Source: Prepared by the authors based on the counts published on the SDG Knowledge Hub (accessed on 9 January 2020). Each event or news item can be classified for more than one category.

(d) Production of analysis and knowledge products that support the global political processes and support national governments in how they can deliver on their commitments to climate action: e.g. World Bank, UNDP, OECD, FAO, IEA.

(e) Specialized UN agencies and other international organizations further the understanding of climate change drivers, impacts and adaptation options in their specific domains and contribute to developing national capacities in this regard, such as IAE, FAO or WHO.

(f) UNSD and the statistical divisions of UN regional commissions support the national statistical systems in providing the necessary data and statistics at the national level.

55. More clarity in the roles of various organizations, their engagement with the global political process and scope of current and planned data-related activities would be helpful in better understanding of the overall climate data landscape. This is particularly important because it is a very dynamic area, and the involvement of the organizations is increasing. At the same time, a lack of understanding may lead to duplication of efforts and gaps in support.

B. The 2014 CES Recommendations have defined the role of national statistical offices

56. The CES Recommendations have defined the climate change-related statistics as “Environmental, social and economic data that measure the human causes of climate change, the impacts of climate change on human and natural systems, the efforts of humans to avoid the consequences as well as their efforts to adapt to the consequences”.

57. The Recommendations have defined the role of the statistical offices in supporting greenhouse gas inventories and in producing other climate-change related statistics covering emissions, drivers, mitigation, impacts, and adaptation in regard to the environment, society and economy. The scope of climate action, required and accelerated by the Paris Agreement, proves that this cross-cutting definition of climate change-related statistics remains valid. The recommended holistic and systemic approaches to the development of climate change-related

statistics have become even more relevant, with the growing awareness of the multidimensionality of the climate change challenge.

C. The political process is complex

58. The intergovernmental process of the global policy response to climate change is very complex. Although it is a political process, many activities are related to monitoring and reporting, data gaps, measurement, knowledge and evidence. National statistical offices are not involved directly in the work of the various bodies or in the negotiations, but they may be consulted by national governments. With a growing focus on impacts, adaptation, vulnerability in regard to the society and the economy, the potential for involvement of national statistical offices is also increasing. But because the statistical community is not directly involved, it must closely follow the developments to identify the potential entry points and when and where necessary, inform about its preparedness to contribute.

59. The UNFCCC Secretariat has been sharing information through existing channels, and the statistical community is trying to use existing platforms to follow the developments but given the complexity of the process and the number of various bodies, even simply following the developments requires resources.

60. Particularly, the UNECE Expert Forum for Producers and Users of Climate Change-Related Statistics has been instrumental for sharing the information on the developments in the political process with statistical offices in this region. At the global level, the meetings of the UNSD Expert Group on Environment Statistics have also been an important platform for exchange.

61. However, with the growing number of stakeholders and activities, the existing annual fora may not be sufficient for exchange of detailed information.

D. Supporting greenhouse gas emissions inventories remains very important

62. The Paris Agreement introduces an enhanced transparency framework, which builds on the previous mechanism under the Kyoto protocol, referred to as monitoring, reporting and verification. Both IPCC guidelines and the CES Recommendations defined the role of NSOs in that process and encouraged collaboration between NSOs and inventories. For the countries that were Annex I parties to the Kyoto Protocol, the Paris Agreement does not bring much change in reporting obligations on greenhouse gas emissions. The main difference is that now the same mechanism applies to all countries, while previously it only applied to Annex I parties.

63. The CES Recommendations listed many ways in which NSOs can increase their involvement and these recommendations remain valid for the reporting under the Paris Agreement. The Steering Group produced multiple resources to facilitate the implementation of the Recommendations. The survey from 2016 evidenced that the involvement of NSOs in GHG inventories have increased. The 2019 IPCC Guidelines give even greater emphasis on the role of official statistics and collaboration with statistical offices – the guidelines clearly state that the most relevant authority for providing data to inventories is the statistical office.

64. Although progress has been made, there is still room for improvement. The quality of estimations depends on the details, frequency and timeliness of underlying activity data. For example, the Expert Forum advised that it would be helpful if the timeline of reporting energy statistics/balances were aligned with the ones of GHG inventories.

65. With the adoption of the Paris Agreement Work Programme, some countries are re-examining their reporting arrangements. The momentum generated by the Paris Agreement at the national and international level can be utilized for improvement in this very concrete aspect of providing data and statistics for climate action.

66. The reporting requirements for the Paris Agreement include also tracking policies from NDCs and providing information on climate change impacts and adaptation measures and support provided and received. Countries have flexibility in how they submit this information, and it does not have to be quantitative. It will, therefore, depend on the country whether NSOs will be involved, whether they will need to provide data for these reporting components and if yes, what data. It is not yet clear whether this will be a common case in our region.

E. Policies should bring new information requirements

67. The reporting requirements for the Paris Agreement may not bring a lot of new direct demands for data from the NSOs. However, national governments will need to put in place increasingly ambitious mitigation and adaptation policies declared in their NDCs, and these policies should be driven by reliable data. The analysis conducted by UNDP has found that the lack of reliable data is currently a major impediment to the implementation of nationally determined contributions (NDCs).

68. As climate change is affecting all aspects of economy and society, crucial data for policies on climate change drivers, impacts and adaptation efforts can come from national statistical offices.

69. For mitigation policies, a significant part of data can come from greenhouse gas inventories. Still, for establishing relationships between emissions and economic activities, the reference framework should be the System of Environmental-Economic Accounting (SEEA). For policy discussion, important can also be data on co-benefits of mitigation measures, such as the decrease of air pollution and its health impacts.

70. For adaptation, evidence-based analysis of vulnerability is crucial to enable prioritization of adaptation efforts by the policymakers and inform the public debate. The linkage of climate change phenomena with economic and social impact can be of greatest interest to the general public and can have an impact on the acceptance of mitigation and adaptation policies.

71. Integrating data from various domains is needed to enable the analysis of the links between climate change occurrences, its impacts and climate action. Even though a large portion of the data may not be official statistics, national statistical offices have the necessary expertise to support such exercises or contribute to them. Georeferencing statistical data is key in this process.

72. There is also a need for more focus on regional data and data for cities since many taken measures are taken at a local level, and local authorities want to monitor their own efforts.

73. The institutions and countries contributing to this paper have underlined in particular the needs for data on climate change adaptation and impacts, measures taken to combat climate change, loss and damage related to weather and climate events and climate change education. NSOs may find valuable information on their national data needs from studying nationally determined contributions submitted to UNFCCC, but direct interaction with users on national and international levels is vital to understand and anticipate detailed demands.

74. Climate policy needs to be driven by science. The IPCC process assesses scientific evidence and, in the process, identifies knowledge gaps, for which there is not enough published research. As of now, it is not clear which knowledge gaps can be linked to data gaps unless it is mentioned explicitly in the report.

F. Measuring adaptation remains a particular challenge

75. Measuring climate change adaptation is a particular challenge as there is no global conceptual framework on this issue.

76. The Paris Agreement has accelerated the discussions on measuring and assessing adaptation actions on national and global levels. Global attempts to develop indicators for measuring adaptation concluded that it is challenging to identify adaptation indicators that are internationally comparable and policy-relevant. To be policy-relevant, adaptation indicators should be suited to the national and local contexts, which vary greatly. Most pragmatic and comparable solutions are indicators on the number of risk reduction strategies or policies, but they are of limited use for actual policy applications. The adaptation goal of the Paris Agreement is, therefore, qualitative, and countries will have flexibility in how they report on their adaptation actions.

77. Although a common adaptation measure is not going to be used for reporting, the availability of data and evidence are key to implement effective policies needed the Paris Agreement. In its 2018 *Special Report on Global Warming of 1.5 °C*, IPCC diagnosed that “the ability to identify explanatory factors affecting the progress of climate change policy is constrained by the lack of data on adaptation across nations, regions and sectors, compounded by an absence of frameworks for assessing progress.” IPCC also highlighted that in the absence of systematic measurements “focus on ‘success stories’ and leading adaptors overlooks lessons from situations where no or unsuccessful adaptation is taking place”.

78. Many institutions, international organizations, non-profit initiatives or research organizations have undertaken activities on measuring climate change adaptation but mostly outside of the statistical community. Many activities are in the context of monitoring and evaluation of adaptation projects. Several institutions, such as DFID or GIZ, developed or collected sets of indicators used for this purpose. Some considerations regarding the feasibility of measurement on the global level (UNEP, 2017) and analysis of existing national practices (EEA and ETC/CCA, 2018). were also carried out. The 2020 *CES Set of Core Climate Change-related Indicators and Statistics*⁸ includes a few core adaptation indicators, but the Task Force has acknowledged the difficulty of this task and the need for further work on this topic. The work on the global indicator set by UNSD is ongoing but also recognizes the challenge of this particular area.

79. Many countries develop indicator frameworks linked to their adaptation plans, but the statistical offices are not involved systematically. A common conceptual framework and involvement of the national statistical offices can certainly increase the usefulness of these datasets, even if they are not official statistics.

80. Although it may not be possible to define an internationally applicable set of climate change adaptation indicators, the statistical community could certainly contribute a lot to making progress on this issue, both on national and international levels. Depending on the country, NSOs may play some of the following roles in the improvement of measuring climate change adaptation:

- (a) Provide official statistics on climate change impacts on the economy, society and environment;
- (b) Provide characteristics of vulnerable populations, regions, sectors, linking them with geospatial data and socioeconomic data at a local level (e.g. GDP shares of vulnerable regions or sectors);
- (c) Providing statistical expertise in developing a consistent measurement framework and the methodology to compile the data according to standard statistical quality principles;
- (d) Producing indicators;
- (e) Sharing microdata for risk analyses (while ensuring the confidentiality of individual data);
- (f) Collaborating with academia to promote data-driven research and methodology development:

⁸ The CES Refined set of climate change-related statistics and indicators is submitted to the CES Bureau as document 23.

(g) Collaborating with cities and local governments and helping them make the best use of existing data.

G. Data availability, accessibility and comparability

81. The fact that existing official statistics may be used for climate change analysis is not enough. The data may be produced, but users are not aware of their availability, have difficulty in accessing them or not realize how they can use them for their needs. This is especially challenging in the case of climate change, because relevant data may come from many sources at national and international levels. If data are fragmented, it may be difficult to identify important gaps but also avoid duplication of efforts.

82. UNDRR has noted in its report on the implementation of the Sendai Framework that data collection is often fragmented, non-universal, and not comparable and that “there is a disconnect among ‘knowing’ something, making it ‘available and accessible’ and ‘applying’ what is known”. UNDP has identified lack of access to reliable data as one of the bottlenecks in the involvement of the private sector, cities, regions, investors, civil society and other stakeholders in solutions to climate change. The UN Climate Change Yearbook of the Global Climate Action also underlines that cities need access to decision-useful data and information at the right geographical and temporal scales.

83. As the issue itself is global, it is also important that data is internationally accessible to users from other countries or at the international level. There are several initiatives attempting to address the issue of accessibility – EU Open Data Portal⁹, UNEP World Environment Situation Room, World Bank Climate Change Knowledge Portal, the European Climate Adaptation Platform Climate-ADAPT, EEA Indicators, OECD Environment at Glance indicators. In most cases, the focus is primarily on climate data or climate and environment-related data and statistics.

84. A separate consideration must be given to international comparability of data. For GHG inventories, all countries follow the IPCC guidelines. For climate change-related statistics, the CES indicator set proposes a core set of indicators with specified methodology, which can be produced at the national level. As exemplified in the section dedicated to measuring adaptation, in some areas, the policy-relevant indicators may not be useful for international comparisons and internationally comparable indicators may not be the most policy-relevant when action is needed on a local level. Similarly challenging is the area of biodiversity.

85. When disseminating and communicating the statistics in a new area, the statistical community needs to be particularly mindful of its language and focus on explaining what data means, why it matters and what decisions it can inform, especially while communicating to the general public. New ways of dissemination and communication can be helpful in this endeavour.

H. The policy questions are urgent, and business as usual may be too slow

86. There is a scientific consensus that climate change is an existential threat, and the time to reverse the trend in GHG emissions is very limited. The emissions need to peak very soon, which means that the climate action needs to be urgent to meet the goal of the Paris Agreement, and there may be policy questions which require answer urgently. However, this is usually not the pace of producing new official statistics.

87. There are notable examples of countries producing, e.g. quarterly emissions estimates, but most of climate change-related statistics is currently released at best on an annual basis with a time lag of one year or more. Users are not used to working with data which are produced so slowly and so late.

⁹ <https://data.europa.eu/euodp/en/home>

88. In this context, it may be important to consider how NSOs can support making better use of existing data. An example can be Urban Data Centres established in the Netherlands.

89. The urgency of policy questions also brings a threat of over-reliance on knowledge products developed with external expertise on a project basis, instead of strengthening the national capacity and building a national, sustainable “climate change information system” needed eventually to inform climate action on the local level.

I. Demands are many, and resources are scarce

90. Most countries recognize climate change as one of the biggest threats and, in words of the Secretary-General, a real emergency. However, the production of data for climate change occurrence, mitigation and adaptation is usually not of high priority in NSOs work programmes. In the survey on countries’ progress and plans in developing climate change-related statistics conducted by the Steering Group (see section **Error! Reference source not found.**), several countries highlighted lack of resources for work on climate change-related statistics. The majority of NSOs and GHG inventories deemed that available resources were insufficient.

91. Especially in developing countries, but not exclusively, the resources are scarce, and the needs are competing. NSOs are asked to do more and more without additional resources. The international expert community from international organizations can provide training but cannot remedy the insufficient quantity of properly trained staff, its high turnover, nor the weak or non-existent institutionalization of specialized climate change and disaster statistics areas with an adequate permanent budget at the national level. The economic, sociodemographic and environment statistics are equally needed to produce climate change-related statistics and indicators, and the required level of collaboration and organization of inter-agency collaboration for multi-domain statistics is high.

J. Mandate and independence

92. Some NSOs still face questions about whether they have the mandate to work on climate change. This may happen, especially if an NSO is not responsible for the production of environmental statistics. Climate change is not any more a purely environmental issue, but also a social and economic concern. Therefore, if an NSO has the mandate for producing statistics on social and economic issues, it can be proactive in initiating adding climate change-related statistics to its statistical programme.

93. Close engagement with policymakers is needed to ensure the support for producing climate change-related statistics and making sure it is fit for purpose. The fact that the production is carried out by the national statistical office guarantees its methodological soundness and impartiality in line with the Fundamental Principles, which means that the policymakers should not need to validate any methodological choices. The process of selecting and disseminating indicators must be fully transparent.

94. Although in most countries the professional independence of statistical offices is not called into question, a clear timeline for publication should be agreed with the government at the beginning of the process to avoid any controversies.

K. Coordination, cooperation and communication is key

95. At the national level, there can be many producers of data and statistics related to climate change and climate change-related statistics. Existing mechanisms for coordination among the producers should be used to ensure the coherence of activities and outputs. The production of statistics and indicators may require cooperation among various domain experts, especially in the areas of impacts and adaptation, where the domain expertise needs to be combined with an understanding of how climate change is affecting a given area.

96. The SDG reporting process has put NSOs in its centre as coordinators. However, this is not the case for the Paris Agreement, where the process is usually driven by ministries responsible for environment or climate, with a few exceptions where national statistical offices are responsible for the compilation of greenhouse gas inventories. Indicators under goal 13 are few, with low data availability and limited relevance for national policymaking, so the SDG reporting process has not provided much momentum to the improvement of the coordination in the area of climate change-related statistics and data.

97. Better coordination is needed also between the international organizations. The potential for sharing knowledge, practices, methodological approaches is not fully used. There exist several mechanisms for sharing knowledge on climate change, but usually limited to a particular expert community, be it statistical, climate or research. In the UNECE region, the Expert Forum attempts to bring together users and producers of climate change-related statistics.

98. There is no active mechanism, which would allow for active sharing of information on ongoing activities among international organizations. A big gap in collaboration and communication is also between the statistical community and non-profit and non-governmental organizations, which also play an important role and undertake many data-related activities.

L. Statistical community is not visible

99. Irrespective of all these uses of official statistics in climate action and the importance of the role, the statistical community does not have good visibility in the global climate change debate. Official statistics are widely recognized as a crucial data source, but the statistical community is not explicitly present in the intergovernmental processes and in the global climate change debate. The main focus has been on the interface between the policy and science. In such a dynamic, multi-stakeholder environment, it is difficult to anticipate the needs and be responsive if the statistical community are not at the table.

100. If the community of official statisticians is not a partner in the global debate, it can only react to the outcomes of this debate, but it cannot use its potential to contribute actively. If the statistical community does not take the initiative, it has to rely on how other stakeholders see its role and capacity, which may not be accurate. If the statistical community is not active, it can be bypassed even when it has a clear role to play, and the void may be filled by various data providers of unknown quality and credibility.

VII. Conclusions and recommendations

101. As stated in the first UN Fundamental Principle of Official Statistics “Official statistics provide an indispensable element in the information system of a democratic society, serving the government, the economy and the public with data about the economic, demographic, social and environmental situation.” National statistical offices can play an essential role in national climate change information systems, but the statistical community has to step up its efforts and engage much more actively in the complicated landscape of data for climate action.

102. The work of the statistical community under the Conference of European Statisticians has brought concrete results in the form of the CES Recommendations, which defined the climate change-related statistics and the role of national statistical offices in support of greenhouse gas inventories and climate change analysis and policy. With the support of the CES Steering Group of Climate Change-Related Statistics, significant improvements were achieved in the involvement of the NSOs in greenhouse gas inventories, availability of methodological guidance, establishing a platform for sharing of knowledge and experiences among countries through the Expert Forum. Improvement has been achieved in the implementation and further development of SEEA and its use to produce climate change-related indicators and it is still ongoing. The *CES Core Set of Climate Change-Related Indicators* and CES Recommendations on the role are key tools for the NSOs looking to play a more active role and the resources produced by the Steering Group help to initiate a holistic

improvement process. The work on the implementation of the CES Recommendations, which remain highly relevant, must continue and utilize the momentum generated by the Paris Agreement and its work programme.

103. At the same time, there is an urgent need to look at climate change as a central challenge of sustainable development that requires data and statistics from all domains. Climate change considerations are increasingly mainstreamed into all areas of development work. It is time that the statistical community considers mainstreaming climate change considerations into all areas of statistical work so that the climate change-related statistics can really be “Environmental, social and economic data that measure the human causes of climate change, the impacts of climate change on human and natural systems, the efforts of humans to avoid the consequences as well as their efforts to adapt to the consequences”.

104. There is a tension between making a case for greater involvement and a widely reported lack of resources to address the existing needs. A high-level discussion on whether the statistical community can and wants to step up is needed. A CES seminar on issues identified in this paper could be considered.

105. With some exceptions, there are almost no financial resources dedicated to capacity development in this area. In practice, climate change-related statistics is often considered to be a stand-alone domain (instead of a cross-cutting issue) and is therefore in direct competition for resources with other, more traditional, statistical domains. Capacity development funding addressing specifically the climate change-related work of NSOs is needed.

106. The time has come, and the urgency is significant so that NSOs do not have to wait for being asked to work on this issue and they can proactively propose to include the topic of climate change in the statistical programmes. But more resources are needed, and the work must be assigned a higher priority, also at the international organizations.

107. Although NSOs can be proactive, they benefit from political support in producing climate change-related statistics and clearly articulated demand by the policymakers. Showing the preparedness to start working on climate change can help establish the relationship with stakeholders, identify concrete demands and attract support and resources. By producing more data, NSOs can increase their visibility and initiate the conversation with users. Good starting points are CES set of indicators or involvement in measuring hazardous events and disasters where guidelines are already available.

108. NSOs could do more to improve the data timeliness and frequency, to send a message about the importance of this work. What can be done to get data timelier? Early estimates? New methods? New sources, e.g. geospatial data? What additional capacity would be needed? The statistical community can also help to make better use of existing data. It is critical to identify the low hanging fruits but also to have a long-term improvement plan.

109. Many challenges and gaps in knowledge and data persist. The statistical community has the expertise to contribute, but it has to engage more closely with other institutions active in the field, both as data producers and as data users, to identify the most useful way of contributing given the limited resources. The first step could be a side event at COP 26, using the already developed materials and partnerships.

110. Common thinking on the challenging areas is needed, in particular on measuring climate change adaptation. The statistical community should explore what it can contribute. The international statistical community should explore the possibility of developing a common conceptual framework for measuring climate change adaptation.

111. The statistical community needs to communicate more directly to users what it can and wants to offer. The statistical community should encourage users to communicate about their needs. Some of the challenges and gaps may not be directed at NSOs because the users do not realize that the NSOs could help. The international organizations supporting the statistical offices, need to engage more closely with international organizations who support

national data users to have more insights into data needs. Some data needs can only be identified at the international level.

112. The statistical community needs a closer engagement with research organizations for a better understanding to what extent the current gaps in knowledge and understanding are driven by data gaps and to what extent data can help to address them. Short term and long-term solutions are needed.

113. In addition to the well-established UNECE Expert Fora for producers and users of climate change-related statistics, additional mechanisms for direct communication among international organizations involved in providing and using statistics, data and evidence related to climate change could be considered to improve coordination, allow mutual learning and avoid duplication of efforts. Such a mechanism should cover not only statistical organizations but a bigger climate data community. It could be in the form of communities of practice.

114. In addition to the CES work on climate change-related statistics, in recent years, CES and its Bureau have deliberated on several strategic and managerial issues, which could have a direct application for strengthening the role of national statistical offices in climate change. Key topics are: new roles of NSOs including their analytical function, measuring what matters, integrating statistical and geospatial data, communicating the value of official statistics, statistical legislation, statistics and data on cities. Important learning can also come from work on SDGs and gender statistics as they both are cross-cutting issues. The statistical community should explore how this new thinking applies to its role in climate action.

VIII. Discussion by the Bureau of the Conference of European Statisticians

115. The Bureau discussed in-depth the role of the statistical community in climate action based on a paper by the Steering Group on climate change-related statistics. The following points were raised in the discussion:

(a) The paper provides a very useful overview of ongoing work and emerging issues. The topic is strategically important for official statistics but also sensitive – there is high risk and high reward. NSOs in many countries are actively involved but there is potential for doing more;

(b) Official statistics should increase its visibility in supporting climate action. It is still often the case that official statistics is not even mentioned in the work on climate change-related issues (e.g. in COP discussions);

(c) It is important to identify where official statistics can add the greatest value, focus on a few priority areas, and align better with the work in other statistical areas. High-level commitment and prioritising are linked with the amount of resources that NSOs can devote to the work in this area. Partnerships and collaboration with academia, research community, and environment protection organizations are needed. This can be also a way of increasing visibility;

(d) Needs for climate change-related data often cut across domains and should be incorporated into the current economic and social statistics. Overall, the involvement in greenhouse gas inventories is working well. More use could be made of the System of Environmental-economic Accounting (SEEA);

(e) Most value added is generated when data from different domains can be linked, including from outside official statistics. NSOs are in a good position to promote the use of common (statistical) classifications for this purpose;

(f) One of the most urgent areas requiring further development is measuring climate change adaptation. A conceptual framework for this area would be useful but it cannot be developed quickly;

(g) The financial aspect of climate change is gaining importance, e.g. for tracking the climate-change related expenditures, projects and loans. However, there are no internationally agreed definitions of ‘green’ finance. IMF is planning to incorporate climate-related indicators into the next revision of their economic statistics manuals. The financial dimension could be better highlighted in the in-depth review paper;

(h) The paper needs to be updated to reflect recent developments. After updating, it should be widely circulated at expert and top managerial levels, including at the World Data Forum and COP26.

Conclusion

116. The involved organizations and countries are asked to review and update the text about their organization.

117. The updated paper is submitted to the CES plenary session along other in-depth review papers, and to the next Expert Forum for producers and users of climate change related statistics. The Secretariat will consider possibilities for promoting it at the World Data Forum and COP26. The Steering Group will prepare a short paper with suggested further actions for the October 2020 meeting.
