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## Economic Commission for Europe

### Conference of European Statisticians

#### 67th plenary session

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Item 11(a) of the provisional agenda

#### **Programme of work of the Statistics subprogramme of the United Nations Economic Commission for Europe**

#### **Reports on the work of the Conference of European Statisticians, its Bureau and Teams of Specialists**

## **Implementation of the United Nations Economic Commission for Europe Statistical Programme 2018**

Note by the secretariat

### Addendum

### **Report of the Expert Forum for producers and users of climate change- related statistics**

#### *Summary*

The document presents the key outcomes of the third Expert Forum for producers and users of climate change-related statistics held on 2-4 October 2018 in Geneva. The meeting was organized following a decision of the CES on June 2018 and is submitted to the Conference of European Statisticians for information.



## **I. Attendance**

1. The UNECE Expert Forum for producers and users of climate change-related statistics was attended by representatives of Armenia, Austria, Azerbaijan, Belarus, Brazil, Canada, Czech Republic, Finland, France, Georgia, Hungary, Ireland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Mexico, Mongolia, Netherlands, Poland, Portugal, Republic of Moldova, Russian Federation, Slovakia, Slovenia, Sweden (connected by video conference), Switzerland, Tajikistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, and Uzbekistan.
2. The meeting was also attended by representatives from the Directorate-General for Climate Action of the European Commission (DG-CLIMA), Eurostat, European Environment Agency (EEA), United Nations Food and Agriculture Organization (FAO), International Energy Agency (IEA), Global Geospatial Management Secretariat (UN-GGIM), United Nations Framework Convention on Climate Change (UNFCCC), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Economic and Social Commission for Western Asia (ESCWA), United Nations Environment (UN Environment), United Nations Mission in Kosovo (UNMIK), United Nations Office for Disaster Risk Reduction (UNISDR), United Nations Statistics Division (UNSD), International Labour Organisation (ILO), World Meteorological Organization (WMO) and UNECE.
3. City of Oslo, Copernicus Climate Change Service (European Centre for Medium-Range Weather Forecasts (ECMWF)) as well as the Group on Earth Observation (GEO) were also represented.
4. Midsummer Analytics and a representative of the European Neighbourhood Instrument (ENI) Shared Environmental Information System (SEIS) also participated in the Expert Forum.

## **II. Organisation of the meeting**

5. Olivier Thunus (Statistics Luxembourg) chaired the Expert Forum.
6. The participants adopted the provisional agenda of the Expert Forum.
7. The following substantive topics were discussed:
  - Session 1: Setting the scene
  - Session 2: Set of climate change-related indicators
  - Session 3: Statistics on climate change adaptation
  - Session 4: Measurement of hazardous events and disasters
  - Session 5: Use of geospatial data and earth observations with climate change-related statistics
  - Session 6: Cooperation and collaboration on climate change-related statistics
  - Closing: The way forward.
8. All meeting documents are available at: <http://www.unece.org/index.php?id=47805>

### III. Summary of the discussion and main conclusions reached at the meeting

#### A. Setting the scene

Opening addresses and presentations: Lidia Bratanova (UNECE), Maxx Dilley (WMO).

Keynote speech: Kirsi Madi (UNISDR, Director).

9. The first session was organised by the Chair of the Expert Forum, Olivier Thunus (Luxembourg). The Chair set the scene for the subsequent discussions by recalling the progress achieved in the area of climate change-related statistics since the first Expert Forum. He highlighted the shift in the perception of the importance of this work among the policy makers and general public, and a significant increase in breadth and depth of the information needs.

10. The Director of the UNECE Statistical Division, Lidia Bratanova, welcomed the participants of the Expert Forum. She recalled the rationale for establishing the Forum by the Bureau of the Conference of European Statisticians and emphasized the main achievement of the Forum, which has been bringing together the experts representing various communities and fostering partnerships between the relevant institutions.

11. In the opening statement, Maxx Dilley (WMO) gave an overview of the scope of information needed to understand the climate change: behaviour of climate system, drivers of the climate changes and their impacts on the society. He introduced the WMO headline indicators and essential climate variables, which focus primarily on climate system behaviour, and underlined the complementarity between the data from hydrometeorological institutes, greenhouse gas (GHG) inventories and national statistical offices (NSOs), which are all needed to get the full picture of climate change. He also mentioned the importance of introducing unique identifiers and using the same typology of extreme events in different data collections for tracking damage caused by extreme events.

12. In the keynote speech, Kirsi Madi (UNISDR) explained the importance of reducing disaster risk for achieving the goals of 2030 Agenda for Sustainable Development. She noted the challenge of understanding the global picture of disaster impact – as currently mostly large and medium scale disasters are reflected in the statistics. She also drew attention to the paradigm shift under the Sendai framework from disaster management and response to risk management and strengthening resilience. She highlighted the critical role of NSOs in reporting on the seven global targets of the Sendai framework in a manner that is coherent with reporting on SDGs and the Paris Agreement.

13. All speakers stressed the importance of collaboration of expert communities to monitor the policy frameworks. A lot has been achieved by streamlining the policy frameworks, but more efforts are needed to harmonize the reporting. The regional efforts to improve the transparency and efficiency of the production of statistics for SDGs were also noted. A recent paper explaining the system of custodian agencies for SDG indicators presented in the 2018 plenary session of the Conference of European Statisticians (CES) was recommended to meeting participants as a valuable resource.<sup>1</sup>

#### 2. Set of climate change-related indicators

Presentations: Angelica Tudini (Italy), Olivier Thunus (Luxembourg), Reena Shah (UNSD), Alessandra Alfieri (UNSD), Omar Baddour (WMO).

14. The session was organised and chaired by Angelica Tudini (Italy), the Chair of Task Force on a set of key climate change-related statistics and indicators. The Task Force presented progress in the refinement of the initial set of core indicators and identification of a set of operational and contextual indicators to accompany the core set. During its first year of work under the new mandate, the Task Force started the revision of the initial list of

<sup>1</sup>See: [http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2018/CES\\_39.pdf](http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2018/CES_39.pdf)

indicators and their metadata. Particular emphasis was given to “dual indicators”, i.e. indicators that can be related either to the economy of a country (so-called residence principle) or to the geographic territory (so-called territory principle). The Task Force encouraged the countries to produce the subset of indicators of high policy relevance following both the residence principle and the territory principle (such as the indicators related to GHG emissions and energy). This is consistent with the recommendations of the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA). For the remaining dual indicators, the SEEA approach (i.e. the residence principle) is recommended, and, if the underlying SEEA account is not available, proxy indicators can be calculated based on other existing data sets (statistics). UNSD reported to the Expert Forum about the progress achieved in the development of the global set of indicators. WMO presented their experience in the production of climate change-related statistics and indicators relevant to the work of the Task Force, such as Global Climate Indicators<sup>2</sup>.

15. The following main points were raised during the session:

(a) Practical advice was provided on potentially relevant data sources such as the SEEA Agriculture, Forestry and Fisheries. The Task Force was also encouraged to provide explanations of the difference between the indicators based on the two approaches.

(b) The ongoing refinement of the ECE initial set of indicators will provide important inputs for the development of the global set of climate change statistics and indicators, currently undertaken by UNSD, following the decision of the UN Statistical Commission in 2017. Continuing the close cooperation between UNSD and UNECE in this work is important.

(c) Many of the SDG indicators that are also part of the core set developed by the ECE Task Force can be calculated based on SEEA, which is not yet reflected in SDG metadata. UNSD is currently aiming to align the metadata of these SDG indicators with SEEA in the 2020 revision. UNCEEA aims to establish global databases for environmental accounting, with priority for energy, air emissions, material flow, land and water. These initiatives will contribute to the work of the Task Force.

(d) Climatological and weather indicators do not play a primary role in the initial set of indicators, consistently with the approach of the 2014 CES recommendations. They could be used as contextual indicators. For the few climate-related indicators that are part of the set, input from the WMO is crucial. Of particular importance will be the WMO contribution to the discussion on the choice of a reference period for indicators on temperature change.

(e) The temperature increase is only one variable describing the change in the climate system. WMO has selected seven headline Global Climate Indicators<sup>2</sup>. It was also mentioned that there is currently no agreed global climate change-related indicator on precipitation.

(f) It was emphasized that the climate change should not be presented as beneficial for some countries, e.g. when the effect of increasing temperature improves agricultural production, leads to more tourism or provides other short-term advantages for selected activities because of melting glaciers or the arctic ice. Other changes in the climate system, such as extreme weather and climate events and disasters, have severe negative effects. It was mentioned that a case study conducted recently in Canada showed that climate change is reducing the comprehensive wealth of the nation due to the disruption caused by the extreme climate events.

(g) The Task Force clarified that its aim is to provide the methodology and guidelines for producing climate-change related indicators but there is no plan for putting in place any data collection or compulsory reporting.

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<sup>2</sup> <https://public.wmo.int/en/programmes/global-climate-observing-system/global-climate-indicators>

### 3. Statistics on climate change adaptation

Presentations: Sergio Castellari (EEA), Giovanna Tagliacozzo (Italy), Livia Hollins (UNFCCC), Carlo Buontempo (COPERNICUS), Max Linsen (DG-CLIMA), José Paulino (Portugal).

16. The session was organized and chaired by Sergio Castellari (EEA) and Giovanna Tagliacozzo (Italy), and involved speakers from science and policy community at global and European level. The session underscored the strong ties between the climate change adaptation and disaster risk reduction. The presentation from UNFCCC informed about the global goal of adaptation under the Paris Agreement and highlighted the linkages with SDGs and Sendai framework. The presentation from DG CLIMA encouraged collaborative approach and coherence, and highlighted the necessity to bridge the knowledge gaps to address user information needs. The session showcased Copernicus Climate Change Service (C3S) that provides access to climate data and tools for their analysis, which may be relevant for analysing adaptation needs. The presentation highlighted also the continuing need for standardization of meteorological variables. EEA provided a comprehensive report on climate change adaptation and disaster risk reduction in Europe, highlighting used data sources. National case study from Portugal provided a concrete example of country experience in measuring climate-change adaptation.

17. The following points were raised in the session:

(a) Although there is a global definition of climate change adaptation, the activities vary strongly between countries and even on subnational level. This poses challenges to NSOs which could play a strong role in this area.

(b) Under the Paris Agreement, the countries have not yet come up with indicators to measure the aggregate progress on adaptation. The COP24 in December 2018 in Katowice, Poland, is expected to bring more specific requirements for adaptation indicators. On the national level, the focus had been so far on identifying and prioritising the adaptation needs and on monitoring and evaluation of their effectiveness.

(c) Many questions related to the development of adaptation indicators remain unanswered. Practical guidelines, coherent approaches, and improving knowledge are necessary to address this global challenge. National and regional (such as the EU Climate-ADAPT platform) web-based knowledge portals and multi-stakeholder coordination platforms play an important role in sharing improved and harmonised knowledge on climate change adaptation and disaster risk reduction.

(d) Strong partnerships with the national statistical offices and collaboration between institutions are necessary to avoid the duplication of work on climate change adaptation indicators.

(e) Climate change adaptation indicators need to be based on quality controlled, standardized data provided operationally in a timely manner by an authoritative source.

(f) The Netherlands referred to two recent research reports on the inventory of data needs, which can be seen as a first step in developing climate change adaptation statistics. The reports are available on the Steering Group's wiki space on good practices on climate change-related statistics<sup>3</sup>.

### 4. Measurement of hazardous events and disasters

Presentations: Rikke Munk-Hansen (ESCAP), Giovanna Tagliacozzo (Italy), Rahul Sengupta (UNISDR), James Douris (WMO), Denise Kronemberger (Brazil), Paul McElvaney and Dimitri Cernize (Ireland).

18. The session was organised and chaired by Angela Feruzza, the Chair of the UNECE Task Force on measuring hazardous events and disasters. The session discussed the role of national statistical offices in providing statistics for hazardous events and disasters and

<sup>3</sup> See: <https://statswiki.unece.org/display/GPCCS/6.+Developing+new+statistics>

provided a platform for international organisations and countries to present their activities in this area. The Task Force is currently working on CES *Recommendations on measuring hazardous events and disasters*. The Recommendations define the role of NSOs in measuring hazardous events and disasters and recommend developing tailor made national road maps similar to the approach for developing climate change-related statistics.

19. The following points were raised during the session:

(a) Disasters may be caused by natural phenomena or human actions and can result in physical and environmental damage and loss of capital and human lives. When a disaster occurs, NSOs are often asked to quickly provide data on population, economic activities, buildings and infrastructures. This is why one of the recommendations of the Task Force is to have a set of crucial data (such as on population and infrastructure) prepared already before a disaster occurs.

(b) The recently published UNESCAP Disaster-related Statistical Framework (DRSF) is an important reference document for all producers of disaster-related statistics. The draft CES Recommendations and DRSF are complementary, and both are of global relevance.

(c) Certain issues such as applying common hazard classifications for measuring extreme climate and weather events (WMO classification) and for monitoring of disasters (IRDR classification) still require more attention as they may not be fully harmonised.

(d) The examples provided by Brazil and Ireland showcased different roles of NSOs in disaster-risk management and climate analysis. The case of Brazil showed how traditional statistical data (e.g. population census) can be used and improved to be fit for national disaster risk management. The Irish example showcased the role of the NSO in climate data rescue, i.e. retrieving data from historic paper records.

(e) It is important to consider interlinkages between environmental, economic, social and geographical data to produce the statistical information relevant in the context of hazardous events and disasters. Geographical data, administrative data and big data can be used in addition to traditional sources.

(f) Cooperation of international institutions (e.g. WMO, UNISDR) involving the statistical community is essential to develop classifications and definitions that can be used in producing the statistics and indicators in a coherent way to measure and monitor SDGs, Sendai and Paris Agreement.

(g) It is necessary to align all relevant components and to bridge different competencies to promote cooperation among international institutions and national statistical systems, and to have a common language for all actors.

(h) The increased involvement of NSOs in this area should be achieved by a step-by-step process.

20. Participants requested to continue the exchange of knowledge and experience among international organisations and among NSOs on measuring hazardous events and disasters. Therefore, it was recommended to dedicate a full day for this topic at the next Expert Forum in a form of a one-day back-to-back meeting in addition to a 2 days Expert Forum for producers and users of climate change-related statistics.

## **5. Use of geospatial data and earth observations with climate change-related statistics**

Presentations: Mark Iliffe (UN-GGIM Secretariat), Steven Ramage (GEO Secretariat), Francesco Tubiello (FAO), Hermanus Rietveld (Netherlands) and Francisco Jimenez (Mexico)

21. The session was organized by Gregory Scott (UNSD) and chaired by Mark Iliffe (UN-GGIM Secretariat). The session provided an overview of activities undertaken by international organizations and countries in using geospatial data and earth observations for climate change-related statistics.

22. The following main points were raised during the session:

(a) Frameworks such as the Global Statistical Geospatial Framework are important to enable the use of new and innovative data sources and integrate them with traditional statistics. NSOs can use geospatial information to make existing statistical processes more efficient and to generate better statistics related climate change, disasters, and other thematic areas.

(b) Earth observations have a great potential to contribute to the reporting on SDGs and national statistical processes. This goes beyond the traditional satellite imagery and also includes in situ data (measurements made at the actual location).

(c) The Inter-Agency and Expert Group on the Sustainable Development Goal Indicators: Working Group on Geospatial Information has developed a list of SDG indicators which could be produced using geographic information. The Group is investigating aggregation and disaggregation by geographic location and the generation of statistics from earth observation outputs. Partnerships at national and international level are crucial to unlocking the potential of earth observations.

(d) FAO is working on computing uncertainties of estimates at local levels, but the communication of such uncertainties remains challenging.

(e) Geospatial data and earth observations can be particularly useful during emergencies or when traditional data collection is not possible, e.g., to provide estimates of crop production in conflict-stricken areas.

## 6. Cooperation and collaboration on climate change-related statistics

Presentations: Matthew Prescott (Canada), Maaïke Bouwmeester (Eurostat), Wafa Aboul-Hosn (ESCWA), Viveka Palm (Sweden), Yurik Poghosyan (Armenia), Nina Holmengen (City of Oslo).

23. The session was organized and chaired by Rob Smith (Midsummer Analytics). The session discussed countries' progress in developing climate change-related statistics and the results of recent actions to address priority data needs.

24. The presentations and subsequent discussion led to following main conclusions:

(a) Cooperation is key for production of climate change related statistics, both within the statistical system and between members of the national statistical system and other stakeholders. No single agency can meet all the demands of users of climate change related statistics. All six presentations showed how cooperation and collaboration helped the countries and organisations to succeed in producing new statistics.

(b) As shown by the experience of Armenia, the *CES Recommendations on Climate Change-Related Statistics* are practical and can serve as a good basis for development of national road maps.

(c) There is a user demand for disaggregated climate change related statistics – regionally, temporally and sectorally.

(d) As evidenced by examples from Sweden and the Netherlands, meeting the user demands for disaggregated data can pay real dividends for a statistical office and lead to increasing use of the data. The presentation from Sweden showed that the acknowledgment and use of the Swedish statistics on GHG emissions was elevated substantially because of the increased frequency of the publications of these statistics following the development of Sweden's quarterly accounts. The anecdotal evidence from the Netherlands also backed that up. Canada is experiencing strong user demand for geographically disaggregated statistics. It is worth time and effort to meet the demand even if it is an additional burden.

(e) Disaggregating climate change-related statistics is a good way to make supplementary use of existing data in NSOs. The temporal disaggregation of statistics in Sweden was a good way to make use of monthly and quarterly energy statistics that were

already being collected. That is a good example of increasing the efficiency of national statistical system by making use of existing statistics.

(f) Transparency, simplicity and accessibility in development and presentation of climate change-related statistics is key to get stakeholder buy-in. The easier to access, use and understand the data are, the more likely they will be used.

## 7. Main conclusions and the way forward

25. The Expert Forum welcomed the work of the Task Force on climate change-related indicators and emphasized the importance of the alignment of the set of indicators with important policy frameworks (*2030 Agenda for Sustainable Development, Sendai Framework, Paris Agreement*) and statistical frameworks (such as the *United Nations Framework for the Development of Environment Statistics* and the *System of Environmental-Economic Accounting*). The work of the Task Force on clarification of methodologies and the development of guidelines for data compilation was also welcomed.

26. The Expert Forum supported the approach that a few indicators of international importance will remain “dual” in the set of core climate change-related indicators: there will be one indicator reflecting the economy (residential approach) and another indicator reflecting the territory (territorial approach).

27. Global climatological indicators (global temperature rise, atmospheric CO<sub>2</sub> concentration, sea level rise, etc.) are important to provide the right context and should be considered by the Task Force to be included in the set of contextual indicators. Regional breakdowns of these data could be useful.

28. After final development of the set of core climate change-related indicators the Shared Environmental Information System (SEIS) and the UNECE set of environmental indicators could be used as mechanisms to produce and disseminate climate change-related statistics and indicators in the UNECE region.

29. The Expert Forum highlighted the need to develop statistical guidance for measuring climate change adaptation, and to further discuss this issue at the next meeting.

30. The Expert Forum requested to continue exchange of knowledge and experience on measuring hazardous events and disasters. It was recommended to dedicate a full day to this topic at the next Expert Forum for producers and users of climate change-related statistics, for example an additional day back-to-back to the Expert Forum.

31. The Expert Forum emphasised the importance of using geospatial information and earth observations for improving statistics on climate change and hazardous events and disasters, and recommended to continue the exchange of knowledge and experience at future similar events.

32. The Expert Forum welcomed the examples of efficient collaboration and cooperation on climate change-related statistics within the national statistical systems and with other agencies. This kind of collaboration should continue in the future.

33. The growing demand for disaggregated climate change-related statistics was mentioned at several occasions during the meeting. Addressing this demand is also a way to make greater use of existing data, which increases the overall efficiency and value of the statistical system. More efforts are needed to further align different concepts and classifications as well as to bridge competencies of different expert communities working on climate change monitoring, disaster-risk management, climate change adaptation and official statistics. The Expert Forum called for continued cooperation between international institutions (including WMO, UNFCCC, IPCC, UNISDR, UNSD, UN Regional Commissions and others) and involving the statistical community in the work related to statistics and indicators to monitor SDGs, Sendai Framework and the Paris Agreement in a coherent way.

34. The Expert Forum recommended to organize the next Expert Forum for producers and users of climate change-related statistics in about one year’s time.



35. It was recommended to invite to the next Expert Forum also some experts representing national hydrometeorological institutes.

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