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envstats News and Notes

Environment Statistics Section
United Nations Statistics Division (UNSD)/DESA

FOCUS:

Actions on Climate Change from the National System of Statistical and Geographical Information of Mexico

(Contributed by Francisco Javier Jiménez Nava, Instituto Nacional de Estadística y Geografía (INEGI)

IN THIS ISSUE

Climate change represents, nationally and globally, new data needs. For this reason it is important to identify and disseminate climate change-related databases, statistics and indicators while ensuring transparency, consistency, comparability, completeness and accuracy in order to meet those needs. National statistical offices, such as INEGI in Mexico, have a greater role to play in contributing to the growing need of environmental information, for example to monitor climate change.

In 2006, a section was added to Article 26 of the Mexican Constitution, which established that Mexico would have a National System of Statistical and Geographic Information (SNIEG) and that the responsibility for regulating and coordinating that System would lie with an institution with technical autonomy, legal personality and own patrimony, INEGI.

INEGI coordinates the SNIEG, which is integrated by four National Information Subsystems, where each one of them has the objective of producing, integrating and disseminating information of national interest, technical standards and related indicators, among others. One of these subsystems corresponds to geographical and environmental information, territorial and urban planning (SNIGMAOTU).

With regard to climate change, the Special Climate Change Program (PECC) establishes various actions to reduce greenhouse gas emissions, improve the detection of the impacts of climate change, as well as to prevent or address the impacts on natural resources due to population growth and economic activities. To comply with the objectives and goals established in the PECC, as well as with international commitments, quality, pertinent, truthful and timely information is required and integrated into an Information System on Climate Change (SICC).

Within the SNIGMAOTU operates the Specialized Technical Committee on Information on Climate Change (CTEICC). This Committee is integrated by the main dependencies with responsibilities in the topic of Climate Change: National Water Commission (CONAGUA), National Institute of Ecology and Climate Change (INECC), Ministry of Agriculture and Rural Development (SADER), Ministry of Energy (SENER), Ministry of Communications and Transport (SCT), Ministry of the Interior (SEGOB), INEGI, Ministry of Environment and Natural Resources

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(SEMARNAT), Ministry of Health (SS) and the Ministry of the Navy (SEMAR).Interior (SEGOB), INEGI, Ministry of Environment and Natural Resources (SEMARNAT), Ministry of Health (SS) and the Ministry of the Navy (SEMAR).

Within the activities of CTEICC is the development of the Information System on Climate Change (http://gaia.inegi.org.mx/sicc/). It is a responsibility of INEGI, as specified in the General Law of Climate Change; the System will operate with the support of government agencies and should generate key indicators addressing at least the following topics:

- National inventory emissions
- Projects to reduce emissions
- The atmospheric conditions of the national territory
- The vulnerability of human settlements, infrastructure, islands, coastal zones and river deltas, attributable to climate change
- Average elevation of the sea
- Estimation of costs attributable to climate change
- The quality of the soils, including their carbon content
- The protection, adaptation and management of biodiversity

The actions described prove that geospatial information, earth observations, big data and statistics can be integrated in support of national priorities and global goals. This integration facilitates location and assessment of public policy over time and can improve the coherence of existing datasets in order to maximize their analysis.

UNSD NEWS:

UNSD's work on the development of the global set of climate change statistics and indicators

Based on the mandates that UNSD received from the Statistical Commission at the 47th session in 2016[1] to review and consider the UNECE set of climate change-related statistics and indicators as a basis for developing a global set of climate change statistics and indicators, and at the 49th session in 2018[2] to link to the processes of UNFCCC to promote the policy and statistics interface, UNSD has continued to implement these and other related recommendations from the Commission.

In order to globalize climate change statistics and indicators, UNSD:

i) has reviewed the UNECE and the IPCC/FDES frameworks and identified links to the Paris Agreement.
ii) is reviewing the UNECE list of indicators and consulting other lists (international organizations (UNFCCC, WMO, FAO), regional institutions (UNECE, ESCWA, ECLAC, OECD), research (IPCC) national agencies (US EPA, New Zealand EPA), national reports (National Adaptation Plans, National Communications) and NGOs (Climate Reality, World Resources Institute) with a view to developing a suitable list prior to the Pilot Survey and Global Consultation.
iii) is planning to develop an inventory of related work on climate change statistics by partner organizations.
iv) is developing a Pilot Survey to be sent to selected countries for testing in 2019.
v) is planning to conduct the Global Consultation in 2020, in preparation for the Report of the Secretary-General to the Statistical Commission in 2021.
vi) is engaging closely with UNFCCC to develop the global set of climate change statistics and indicators to strengthen the link between statistics and policy by:
    - Joint Side Event at the 50th session of the Statistical Commission;
    - UNFCCC participation in the Expert Group on Environment Statistics; and

[1] https://unstats.un.org/unsd/statcom/47th-session/documents/Report-on-the-47th-session-of-the-statistical-commission-E.pdf
[2] https://unstats.un.org/unsd/statcom/49th-session/documents/Report-on-the-49th-session-E.pdf

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- UNFCCC participation in a workshop on environment statistics (which includes climate change statistics) for the Arab region organized by UNSD in collaboration with UNESCWA, UNEP and EEA (Beirut, 12-16 November 2018) and planned participation in a similar workshop for the Caribbean Community (CARICOM) region being planned for November 2019.

vii) is ensuring linkage of the work on the global set of indicators to:

- the Adaptation Programme of UNFCCC (Article 7 - Paris Agreement);
- the Global Stocktake of the Paris Agreement (Article 14); and
- the Transparency Framework of the Paris Agreement (Article 13).

As of June 2019, UNSD has compiled a list of climate change indicators with over 6,500 indicators organized according to the five areas of the IPCC framework (Drivers, Impacts, Mitigation, Adaptation, and Vulnerability). Many of the indicators are repeated across different countries and organizations. Indicators come from documents published by national bodies, such as the Ministry of Environment or National Statistical Offices, which contain country-relevant information, and at least one national source has been taken from more than 100 countries. In addition, international and regional sources such as SDG indicators, FDES, IPCC reports, Sendai Framework and UNECE have been considered to identify other key indicators.

UNSD is identifying a list of the most commonly repeated indicators thereby promoting a bottom-up approach to the selection of indicators and will continue this compilation of indicators from more countries and organizations. UNSD is working with other partners, including UNFCCC, and the Expert Group on Environment Statistics to determine the most suitable time to send out a list of indicators for the Pilot Survey and the Global Consultation. Given the adoption of the Paris Agreement Work Programme at the recent COP24, UNSD looks forward to working more closely with UNFCCC to identify more clearly the data reporting requirements for Parties under the Paris Agreement and how these will contribute to the global set of climate change statistics and indicators, as well as seeking opportunities to build more bridges between the national statistical offices and national climate change reporting authorities.

Side Event at the 50th session of the Statistical Commission: Climate Change – Linking Statistics and Policy

A side event on climate change statistics was organized by UNSD with the support of the United Nations Framework Convention on Climate Change (UNFCCC), the Division for Sustainable Development Goals (DSDG/DESA), and the National Bureau of Statistics of the United Republic of Tanzania. The Side Event provided an update on climate change statistics development, with reflections on statistical developments, SDG reporting and climate change negotiation processes. The implications of the Paris agreement (adopted at COP24) are that both developed and developing countries will report official data and these processes need strong cooperation with national statistical offices (NSOs). Combating climate change is one of the SDG goals and links with several others, therefore the need for stronger coordination mechanisms at high level was underlined. Tanzania shared experiences on comprehensive environment statistics development, including on climate change with external help (from GIZ). Opportunities to strengthen links between policy and climate change statistics were discussed and the need for stronger role of NSOs was emphasized.

Discussion on climate change statistics at the Sixth Meeting of the Expert Group on Environment Statistics (EGES)

As also mentioned in the article below regarding the Sixth Meeting of the Expert Group on Environment Statistics (EGES) that was held in New York from 21 to 23 May 2019, session three included several presentations and working group discussions on climate change statistics. Several international organisations, regional commissions of the United Nations and a country presented on their respective work in climate change statistics. This included recent developments of the Conference of the Parties (COP) 24 which focuses on the key relevance of national statistics for the Enhanced Transparency Framework of the Paris Agreement as well as UNSD's work towards the global set of climate change statistics and indicators. Small groups were invited to provide comment on a draft set of common climate change indicators compiled by UNSD. Suggestions were made to modify wording, to provide a tiering of indicators, and for additional metadata for indicators. More details can be found in the meeting report available at https://unstats.un.org/unsd/environment/FDES/EGES6/Final%20report.pdf.

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Side Event at the High-Level Political Forum 2019: "SDG 13: Advancing implementation of climate action and understanding progress: How advanced are we?"

The Side Event was organized by WMO, UNFCCC, UNDRR, UNSD and FAO bringing together the climate, science, disaster risk reduction and statistical communities and countries to focus efforts on advancing the implementation of climate action on SDG 13. It addressed cooperative efforts across these processes to understand progress and how to support countries in advancing their implementation of SDG 13. In particular it highlighted the:

- advancement of relevant negotiations under the UNFCCC and Parties efforts to meet the goals of the Paris Agreement, in particular on the process to formulate and implement national adaptation plans, the status of Parties nationally determined contributions, and on the global stocktake and enhanced transparency framework;
- the state of climate science, based on the recent WMO State of the Climate report and key climate indicators;
- relevant activities, such as the work of the UNSD in the development of a global set of climate change statistics and indicators and the strengthening of the link between the statistical community and the climate policy process;
- perspectives, progress, lessons learned and needs from countries on the implementation of SDG 13– what's working, what's needed to make tangible progress, from global to local efforts.

A rich discussion followed focusing on the interlinkages among the various communities and international processes. One of the final key messages being that we must look at ourselves, not only international organizations and government, and that we all have to implement change.

Sixth Meeting of the Expert Group on Environment Statistics

The Sixth Meeting of the Expert Group on Environment Statistics (EGES), organized by UNSD was held in New York from 21 to 23 May 2019. It was attended by some 37 experts from 21 countries, ten international organisations, as well as three independent experts.

The five sessions on the agenda were: (i) Environment Statistics Toolbox; (ii) Environment Statistics Data Collection; (iii) Climate Change Statistics; (iv) Other work in Environment Statistics; and (v) Discussion of Priorities and Conclusions.

Regarding the first session, a brief overview of the Framework for the Development of Environment Statistics (FDES) and the process of developing methodology sheets as part of the Manual on the Basic Set of Environment Statistics was followed by a discussion on their applications and countries' experiences with their use. In addition to endorsing the FDES as the framework for strengthening environment statistics programmes in countries in March, 2013, the UN Statistical Commission also emphasized the need for supporting the FDES with detailed methodological guidance and training materials.[3] Currently, some 12 methodology sheets covering a variety of FDES-relevant themes are available on the UNSD website for countries to use.[4] A further six methodology sheets were discussed at this EGES, all of which are currently in a draft status. Conclusions reached regarding the continuation toward a final status of these six methodology sheets is detailed within the Final Report of this EGES.[5] Herewith follows a short summary of each session on this year's agenda.

On the topic of Environment Statistics Data Collection, experts discussed Sustainable Development Goal (SDG)-related reporting requirements, and data collections for waste and water statistics. Several experts presented on their experiences in their respective fields. Minimising respondent burden for NSOs on account of data collection exercises conducted by international agencies was mentioned. International agencies in attendance agreed to closely collaborate, especially on the theme of water, where they shall cross-compare country responses to data collections, and compile a table comparing terms used in respective data collection instruments.

[3] UNSD, E/2013/24 E/CN.3/2013/33, Final Report of the United Nations Statistical Commission, March, 2013, https://unstats.un.org/unsd/statcom/44th-session/documents/statcom-2013-44th-report-E.pdf para. 44/105 (accessed 1 July 2019).
[4] UNSD, Manual on the Basic Set of Environment Statistics, https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshtml (accessed 1 July 2019).
[5] UNSD, Sixth Meeting of the Expert Group on Environment Statistics – Final Report, https://unstats.un.org/unsd/envstats/fdes/fdes_eges6.cshtml (accessed 1 July 2019).

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Session three included presentations and working group discussions on climate change statistics, as well as presentations on disaster-related statistics. Several international organisations, regional commissions of the United Nations and a country presented on their respective work in climate change. This included recent developments of the Conference of the Parties (COP) 24 which focuses on the key relevance of national statistics for the Enhanced Transparency Framework of the Paris Agreement. Small groups were invited to provide comment on a draft set of common climate change indicators compiled by UNSD. Suggestions were made to modify wording, to provide a tiering of indicators, and for additional metadata for indicators.

Session four mostly focused on multi-lateral and bi-lateral capacity development efforts in the field of environment statistics. Countries who are providers of, and countries who are recipient of, capacity development projects shared experiences. In an effort to identify and mitigate any duplication in capacity development efforts, UNSD shall develop an inventory of capacity development activities by agencies and submit it to the 51st session of the Statistical Commission in 2020 as part of the Background Report on Environment statistics to the Report of the Secretary-General on Environment Statistics.

A discussion of priorities and conclusions among plenary gave all experts in attendance the opportunity to specify where they can best contribute to future work. It also helped UNSD clarify conclusions and better understand experts' priorities.

UNSD/United Nations Environment Programme Data Collection 2018

The UNSD/United Nations Environment Programme Questionnaire 2018 on Environment Statistics was sent out on 17 September 2018 to approximately 170 countries and territories, excluding OECD and European Union members (for which comparable data are collected as part of the OECD/Eurostat Joint Questionnaire on the State of the Environment). The Questionnaire (https://unstats.un.org/unsd/envstats/questionnaire) was sent to both National Statistical Offices and Ministries of Environment and asked for coordination within the country.

As of June 2019, 73 countries/territories responded, with 69 countries submitting data and four countries with no data available. Each region's response rate varied significantly. The best response rates were found in East Europe (100%), followed by Asia (53.3%) and the Americas (52.5%). The response rate for Africa was 32.7% and from the Oceania (18.8%). Among the 73 countries submitting data, 60 countries were able to provide data for both the water and waste sections of the questionnaire.

In order to comply with policy demand and to maintain relevance, some substantive changes were implemented for this ninth data collection round. In the waste section of the questionnaire, an Electronic Waste (e-waste) Generation and Collection table was added. This table includes two variables: total e-waste generated and total e-waste collected. Elsewhere in the Questionnaire, the variable, "municipal solid waste generated" at both the national and city levels has been added.

In the water section of the questionnaire, further breakdowns of the International Standard Industrial Classification of All Economic Activities (ISIC) rev. 4 to meet Sustainable Development Goal (SDG) policy demand were made. Three of the tables in the questionnaire (Freshwater Abstraction and Use; Water Supply Industry (ISIC 36); and Wastewater Generation and Treatment) request data for some industries not previously requested via the questionnaire (e.g. Mining and quarrying (ISIC 05-09), Construction (ISIC 41-43), etc.).

All questionnaire responses have been through a thorough data validation process. Selected water and waste statistics with relatively good quality and geographic coverage compiled from the questionnaire, complemented by data from OECD and Eurostat, will be published by UNSD through the UNSD Environmental Indicators webpage (https://unstats.un.org/unsd/envstats/qindicators) and the Country Snapshots webpage (https://unstats.un.org/unsd/envstats/snapshots/). The complete data and footnotes received from each respondent country will be uploaded to the Country Files webpage (https://unstats.un.org/unsd/envstats/country_files). Also, selected water and waste statistics will be updated on UNData (http://data.un.org/). UNSD appreciates countries' continuing support on the improvement of timely and reliable global environment statistics.

After validation of all responses, the complete results from the 2018 round of data collection will be disseminated on the UNSD website.

Collaboration on water questionnaires by international agencies

Eurostat, OECD and UNSD have been collecting data on water from national statistical offices and/or ministries of environment in a harmonized manner starting with OECD work in 1979-80, and later in collaboration with Eurostat (1988), and UNSD (1999). With respect to geographical scope, the international organisations involved apply a layered approach: Eurostat deals with Member States of the European Union (EU) and the European Free Trade Association (EFTA) as well as the respective candidate countries and OECD works with all its Member States not contacted by Eurostat. Data treatment and validation for European countries is done "jointly" by Eurostat and the OECD according to an agreed process and timeline. UNSD sends the UNSD/UN Environment Questionnaire to the rest of the world (approx. 172 countries).

In April 2018, the Food and Agriculture Organization of the United Nations (FAO) initiated a global data collection process through its Water and Agriculture Questionnaire 2018 to populate its AQUASTAT database and support the calculation of two water-related SDG indicators for which it is the custodian agency. This new data collection has some overlap with regular data collection carried out by the OECD together with Eurostat and UNSD/UN Environment. There are some differences in terminology (e.g. abstraction vs. withdrawal, environmental flow requirements) that are being discussed and clarified among these four institutions.

The four institutions have held over ten teleconferences since August 2018 where agenda items have included cross-comparisons of individual countries' data sets, comparison of metadata and terminology used in questionnaires, sharing of focal points, and even consultation with selected countries by multiple agencies to clarify any discrepancies in data a country may be providing to different questionnaires. Following discussion about this topic at the sixth meeting of the Expert Group on Environment Statistics in New York in May 2019, the four international agencies agree to continue to closely collaborate to mitigate respondent burden to countries, and all the while to work toward the possibility of there being one data collection for water statistics conducted at the international level.

Disaster-related statistics featured at the 50th session of the UN Statistical Commission

The UN Statistical Commission, at its 49th Session in 2018, decided to include the topic of disaster-related statistics as a new separate item on the agenda for the 50th session of the Commission in 2019. The 50th session of the Commission therefore had before it the report of the Secretary-General on disaster-related statistics which was prepared by UNSD in collaboration with the Economic and Social Commission for Asia and the Pacific (ESCAP), the Economic Commission for Europe (ECE) and the United Nations Office for Disaster Risk Reduction (UNISDR[6]).

The Statistical Commission, in its report[7], inter alia:

- recognized the urgency of integrating both disaster risk reduction and the building of resilience into national development policies, plans and programmes at all levels and the need to incorporate social, economic and environment statistics into disaster information, as well as the need for better, disaggregated and comparable data and for statistical measurement to capture the impacts of disasters on people in order to improve the understanding of disaster risk reduction, including strengthening resilience and preparedness;
- noted the growing relevance of and greater focus on statistics related to both hazardous events and disasters, acknowledged the already considerable coordination and cooperation in that regard, and emphasized the need for further capacity-building and training on this important topic;
- supported the continuing work under the leadership of the international and regional organizations, towards progressing a common statistical framework and a network of experts for disaster-related statistics among the multiple disciplines and areas of expertise involved, in particular statisticians, disaster risk reduction experts and geospatial information experts, in order to meet the emerging needs of the statistical community;

[6] Now referred to as UNDRR.
[7] https://unstats.un.org/unsd/statcom/50th-session/documents/Report-on-the-50th-session-of-the-statistical-commission-E.pdf .

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- requested UNSD, the ESCAP, ECE, ECLAC and UNISDR, in consultation with members of the existing regional expert groups and task forces, to consider options and modalities for the establishment and coordination of a formal mechanism under the purview of the Statistical Commission to advance a common statistical framework on disaster-related statistics and a network across the expert communities to sustain cooperation, coordination and fundraising for enhancing statistics related to hazardous events and disasters, and requested that they report back to the Commission at a suitable time;
- urged the international statistical community to expand its capacity building efforts in statistics relating to hazardous events and disasters to assist countries in strengthening capacities for disaster management agencies, national statistical offices and other related contributors of official data to meet reporting requirements for evidence-based approaches to achieving national development policies, plans and programmes, and the goals and targets in the Sendai Framework and the 2030 Agenda for Sustainable Development.

Updates on the Manual on the Basic Set of Environment Statistics of the FDES

Technical guidance on most of the 60 topics of the FDES 2013 has been elaborated in methodology sheets, either published (25 topics), in process of drafting (9 topics) or in peer-review (another 9 topics). This includes prioritised topics under the six components, predominantly from 'Environmental Conditions and Quality'; 'Environmental Resources and Their Use' and 'Residuals'. The methodology sheets include an introduction to the context, importance and state-of-art measurement and compilation methods for each topic, followed by existing statistical definitions, classifications, standards, frameworks and data references and examples. Correspondence to commonly produced indicators as well as applications in SEEA and the SDGs are also described. Methodology sheets on Soil characteristics, Ecosystems and biodiversity, Land cover and land use, Forests, Air quality, Minerals, Energy resources, Crops and livestock, Water, Waste, Human settlements, Environmental Protection expenditures can be consulted online: https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshtml. Topics related to Natural disasters, Greenhouse gases, and Marine water quality are expected to be completed in the coming months. Key topics which are still to be elaborated will cover 'Environmental health', 'Freshwater quality', 'Soil pollution', 'Noise', 'Release of chemical substance' and 'Technological disasters'.

During the Sixth Meeting of the Expert Group on Environment Statistics it was noted that the manual chapters are extensively used by countries and Regional Commissions, supporting work on SDGs, climate change indicators and environment statistics which need improved communication across the national statistics systems and wider stakeholders. Suggestions to continuously update the methodology sheets were raised, keeping track of new terms, definitions and classifications, in view of gathering inputs for a possible revision of the FDES in the future. Suggestions were also raised to initiate work on a cross-cutting guidance document on 'Oceans'.

Development Account 10th Tranche Programme for Statistics and Data

UNSD is supporting the pilot countries of The Gambia and Namibia in the development of environment statistics under the Development Account 10th tranche programme. Second missions in The Gambia and Namibia are currently being organized and will take place in August and October 2019. They will consist of a national technical training workshop and bilateral consultations with Ministries and other producers of environment statistics in the two countries. These activities are a follow up to the first missions of UNSD to The Gambia and Namibia which took place in February 2018 and produced assessments of technical and institutional needs and priorities.

Currently, detailed training materials are being prepared corresponding to the statistical priorities identified in The Gambia. The main goal of the national workshop there is to increase the technical capacity for environment statistics in the country, by bringing the stakeholders together to assess work undertaken by The Gambia since UNSD's first mission there and to provide hands-on training on priority topics. For this purpose, the Framework for the Development of Environment Statistics (FDES 2013), the Manual of the Basic Set on Environment Statistics, the Environment Statistics Self-Assessment Tool (ESSAT) and the UNSD/UNEP Questionnaire on Environment Statistics will be used extensively in the workshop. Per discussion between The Gambia and UNSD, and the content of the draft National Action Plan (NAP), additional training modules are being developed on selected priority topics including land use, water, waste and

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climate change statistics. A draft Compendium on Environment Statistics and work plan for completing the outputs of the project will be presented by experts of The Gambia and be discussed during the workshop.

The bilateral consultations with The Gambia Bureau of Statistics (GBS) and other line ministries producing environment statistics will be used to develop further the previous environment statistics assessment using the ESSAT, the NAP and the draft Compendium on Environment Statistics. The bilateral discussions with the GBS and Ministry of Environment on the final day of the mission will set out the next steps in the project implementation, including for completion of the work plan and filling data gaps.

Environment Statistics Compendia and Surveys

Following endorsement of the FDES 2013 by the United Nations Statistical Commission at its 44th session (2013) as the framework for strengthening environment statistics programmes in countries, many countries have compiled environment statistics compendia which apply the FDES 2013. There are 30 compendia and similar publications so far shared with UNSD which are available on UNSD's website at https://unstats.un.org/unsd/envstats/fdescompendia.cshtml in Arabic, English, French, Portuguese and Spanish.

UNSD has compiled over 90 specialized environment statistics surveys and censuses from countries which are available on the website (https://unstats.un.org/unsd/envstats/censuses/) and can be filtered by country, theme and year. Languages in which surveys are available include Arabic, English, French, Portuguese and Spanish.

UNSD welcomes further contributions of both country compendia that apply the FDES 2013, and surveys or censuses on environment statistics. They can be shared with the Environment Statistics Section (contact: envstats@un.org) where they may then be made available on UNSD's website.

INTERNATIONAL NEWS:

FAO UNECA joint national workshops on compilation and application of environmentally extended supply and use table (EE-SUT) for forestry products

(Contributed by by Silvia Cerilli and Francesco N. Tubiello)

High-quality economic and environmental statistics are important inputs into evidence-based policy formulation and decision-making. To measure sustainability, there is a need to integrate economic and natural capital (including environmental assets such as land and forests, living organisms and related ecosystems), human capital, and social capital within a unified accounting framework, to enrich conventional economic measures such as Gross Domestic Product (GDP). The first step towards establishing natural capital accounts is through so-called Environmentally Extended Supply and Use Tables (EE-SUTs), which extend to key environmental aspects the more standard tables of National Accounts used to measure GDP. The System of National Accounts (SNA) and the System of Environmental-Economic Accounting (SEEA) are the reference international statistical standards that underlie concepts, definitions, classifications, accounting framework and methodology needed for this task.

Relevant natural capital linked to agriculture, forestry and fisheries can be accounted for using the SEEA Agriculture, Forestry and Fisheries (SEEA AFF), developed specifically by FAO together with the UN Statistics Division and other international partners. The United Nations Economic Commission for Africa (UNECA) and FAO support Natural Capital activities in member countries, through dedicated capacity development activities, such as the recent national workshops in Senegal (1-5 April), Morocco (23-26 April) and Cameroon (14-17 May).

These three national workshops are the results of a previous regional workshop organized by UNECA in July 2018 in Pretoria, South Africa. FAO attended the UNECA Regional seminar and led two training sessions on SEEA AFF, respectively on Agriculture and Forestry Accounts. FAO interacted with countries and UNECA exploring the possibility to better coordinate capacity development activities on Natural Capital. After the workshop, official requests were made by Morocco, Senegal and Cameroon to implement and compile SEEA AFF forest accounts.

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The *Senegal* national workshop took place in Dakar, Senegal, 1-5 April 2019. It aimed at coordination among national (ANSD[8], CSE[9] and ANACIM[10]) and international (including FAO) data producers and users by: (i) assessing national data availability and readiness for compilation of EE-SUTs on forestry; and (ii) linking to established international reporting processes (e.g.: FAO questionnaires; UNFCCC; SDGs).

The *Morocco* **national workshop** took place in Rabat, Morocco, 23-26 April 2019. It focused on SEEA AFF, added value in terms of Forest Accounts and international reporting systems linked to the SEEA AFF Physical Supply and Use Table (PSUT) on Forestry Products. As a result of the workshop the Morocco Haut-Commissaire au Plan, in coordination with the Haut-Commissaire Eaux et Foret decided to compile and implement the SEEA AFF Accounting Table on Forestry Products.

The *Cameroon* national workshop took place in Yaoundé, Cameroon, 14-17 May and involved, among others, the National Statistical Office, the Ministry of Forest and the National Forestry Development Agency. The workshop focused on the SEEA AFF and in particular on the PSUT on Forestry Products. At the end of the workshop, decision was taken to implement the SEEA AFF accounting table for forestry products.

The national workshops in Morocco, Cameroon and Senegal are part of the ongoing phase of the SEEA AFF country implementation, after the official recognition by the UNCEEA of this accounting framework as an Internationally Agreed Methodological Document in support of the SEEA CF.

The World Environment Situation Room, implementing the Big Data Initiative

(Contributed by Alexandre Caldas, Pascal Peduzzi, Josephine Mule, Jane Muriithi and Erick Litswa, UN Environment)

UN Environment made a follow up on a Foresight Brief, titled Sand, Rarer Than One Thinks, done by UN Environment in 2014. The resulting publication, Sand and Sustainability: Finding new solutions for environmental governance 2019 of global sand resources was launched on May 7th, 2019 in Geneva, Switzerland. The head of the WESR unit gave more than 80 interviews to journalists on this topic. Several conferences and keynote addresses were also made as a result of this report: conference at Wageningen University on 23rd May 2019, Keynote at Chatham House, London on 5th June 2019, presentation at the Informal meeting on Sustainable Infrastructure and Mineral Resource Governance in Switzerland, Neuchâtel on 17-18 June 2019 and a panel discussion at the Mineral Product conference, London on 24 June 2019. This report, circulated to member states at UNEA-4, led to inclusion of sand in the Mineral Resource Resolution where the report is cited. The extensive coverage by the media of the report was evidence of the importance of the issue highlighted.

The World Environment Situation Room demonstration platform was made available for UNEA IV. The demonstration platform is available on this link: https://environmentlive.unep.org/wesr. The UN Environment 'World Environment Situation Room' concept was successfully launched during the Science Policy and Business Forum just before the fourth United Nations Environment Assembly. The concept was exhibited in the UNEA exhibit area successfully and received very positive feedback from visitors in the space.

A map produced in the Science Division titled *Anthropogenic Biomes of the World* has been selected for publication in the *2019 Esri Map Book, Volume 34*. This book will be released in July at the 2019 Esri International User Conference in San Diego, California. The map shows the anthropogenic transformation of the terrestrial biosphere from 1700 to 2000. The data set describes anthropogenic transformations within the terrestrial biosphere caused by sustained direct human interaction with ecosystems, including agriculture and urbanization. Potential natural vegetation, biomes, such as tropical rainforests or grasslands, are based on global vegetation patterns related to climate and geology.

Three new Foresight Briefs were published on emerging environmental issues/solutions.

> The first one entitled "*We are losing the "Little things that run the world*", talks about the disappearing of insects. They play key roles in, pollination, nutrient cycling, food chains of birds and other insectivores, and are one of the pillars of our ecosystems. The wide use of insecticides, fragmentation of habitats and climate change are placing multiple threats on them and their populations are under sharp decline. The foresight brief explores solutions such as the creation of insect's sanctuaries for reconstitution of the insect's population.

[8] Agence Nationale de la Statistique et de la Démographie
[9] Centre de Suivi Ecologique
[10] Agence Nationale de l'Aviation Civile et de la Météorologie

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The second one was on "Environment, Climate Change and Security". The key message for this brief is that conflict degrades the environment and environmental degradation can be a driver of conflicts. This feedback loop is demonstrated in the case of South Sudan. The brief brings elements to better understand the interconnections between environment and security in view of the onset of climate change.

The most recent Foresight Brief "Putting Carbon back where it belongs - the potential of carbon sequestration in the soil" features a win-win solution which can vast amounts of atmospheric carbon in the soil to combat climate change, while at the same time regenerating soil fertility, plant health and whole ecosystems. This is a no regret option that offers multiple benefits and deserves high-level visibility. Access all foresight briefs at: https://environmentlive.unep.org/foresight

On the dissemination and use of tools for Environmental Indicators, UN Environment continues to participate, show case, and its tools and services for various use cases.

IRIS for Mauritius was deployed on the Government Online System in Mauritius in February 2019 under the Shared Environmental Information System (SEIS) Project. The SEIS Coordinating Committee has been set up and the first meeting was held on 9 April 2019. As at date, user name and password has been created for 2 IT Administrators, 5 Technical Administrators and 22 IRIS users to manage the IRIS software. Moreover, 26 datasets from digest of statistics have been uploaded on the open data portal that is connected to the IRIS for Mauritius.

IRIS for the Monitoring of Illegal Killing of Elephants (MIKE) will get to production in July 2019. The most reliable measure of poaching pressure is the Monitoring of Illegal Killing of Elephants (MIKE) programme, established by the UN Convention on International Trade in Endangered Species (CITES). One indicator that results from the MIKE program, is the 'Proportion of Illegally Killed Elephants' (PIKE). The IRIS tool will automatically calculate this measure, **PIKE Indicator,** based on the data on elephant carcasses that are collected from about 100 MIKE Sites that are spread between Africa and Asia.

IRIS for SDG Reporting. At the recent IRIS Governance meeting held on Tue-11-Jun-2019, an announcement was made that there will be a new demonstration project for IRIS, to be named IRIS for SDG reporting. It was also announced that the demo project will be made available by Mon-30-Sep-2019.

24-28 Jun 2019. Remote presentation of IRIS at the ECA organized workshop on **Framework for the Development of Environment Statistics (FDES) implementation**. Accra, Ghana.

22-25 Jul 2019. Presentation of IRIS at the Regional Office for Asia Pacific organized workshop on **Strengthening Environmental Data monitoring, Reporting, Sharing in Asia and the Pacific**. Bangkok, Thailand.

Progress toward measuring progress on the environment SDGs, UN Environment

(Contributed by Jillian Campbell, Ludgarde Coppens and Dany Ghafari, UN Environment)

UN Environment has been working on a number of SDG indicator methodologies and analytical products, including publishing manuals, guidelines, frameworks, and other statistical products on environmental statistics and SDGs monitoring and reporting. Measuring Progress: Towards Achieving the Environmental Dimension of the SDGs, a derivative product of the Global Environment Outlook 6, explores progress made on all 93 environment-related SDGs indicators and the availability of data. Gender and Environment Statistics: Unlocking Information for Action and Measuring the SDGs proposes 18 gender-environment indicators for inclusion in the wider set of gender indicators across various focal areas including right to land, climate change, and women in environmental decision making at all levels. And Measuring Fossil Fuels in the Context of the SDGs is a manual, created in partnership with OECD and IISD, for SDG indicator 12.c.1 on fossil fuel subsidies to help countries collect data to track national and global fossil fuel subsidy trends.

UN Environment's work on environment statistics also includes online data tools and policy briefs. UN Environment, Google Earth, and the European Commission launched a data platform on water-related ecosystems (SDG661 app) around the world. The platform enables better understanding of changes to water bodies by providing access to satellite data and enabling comparative analysis over time. Policy briefs highlight key issues and interlinkages across various themes with evidence based on scientific data and information hosted on the online platform Environment Live and is complemented by stories from around the world. Two recent policy briefs were launched centred around the themes of Sustainable Food Systems and Food Security and Innovative Solutions for the Environmental Dimensions of the 2030 Agenda for Sustainable Development.

OECD NEWS

(Contributed by Myriam Linster, Sarah Miet and Assia Elgouacem)

OECD Working Party on Environmental Information

OECD work on information, indicators and reporting related to environment and sustainable development is steered by the OECD ***Working Party on Environmental Information*** (WPEI), that also provides a forum for helping countries improve their environmental information systems. The WPEI brings together delegates from OECD member, accession and partner countries (environment ministries and agencies, statistical offices), and international organisations, and is chaired by Viveka Palm (Statistics Sweden).

Environmental data quality, indicators and the implementation of the SEEA are high on the WPEI agenda, as well as the use of indicators in decision making, and the communication and dissemination of environmental information.

The ***2018 meeting*** of the WPEI took place on 2-3 December in Paris. A Special Session was dedicated to the monitoring of environment-related SDG targets, and to the contributions that the OECD makes through its work on environmental data and indicators, green growth indicators, environmental accounting and country reviews. The meeting also discussed ways to further improve the policy relevance and quality of international data on waste and water. Calls were made to ensure that the data collected by the OECD in cooperation with UNSD/UN Environment and Eurostat are effectively used at international level, and that duplication of efforts is avoided when mobilising data for SDG indicators. The ***2019 meeting*** will take place on 19-21 November in Paris.

Producing harmonised environmental data and indicators for international work

Environmental data

The purpose of OECD work on environmental data is to provide a core set of objective and reliable ***data on the environment to support international policy work***, and to harmonise these data across countries and regions. The data are collected from member countries, accession countries and partner countries via the OECD questionnaire on the state of the environment (since 1980) and from other international sources, and complemented with data derived from new data sources, including earth observation.

The data collection via ***questionnaire*** is closely coordinated with the UNSD/UN Environment Questionnaire on Environment Statistics, and done jointly with Eurostat for common European Union Member States. This ensures a global country coverage for data on waste and inland waters. The ***2019 data collection*** (October-December) will focus on environmental expenditure and tax revenue, and a quality assurance of reference data on air and GHG emissions, inland waters, solid waste, threatened species and forest resources.

Environmental indicators

To measure environmental performance and monitor policy integration, the OECD maintains several sets of indicators that are used in policy analysis and country reviews. Among these is the ***OECD Core Set of Environmental Indicators***, developed in 1991 and revised in 2013. Updated indicators are available on the OECD statistical platform (http://dx.doi.org/10.1787/env-data-en). A selection of indicators targeted at a broader audience is regularly published in an "Environment at a glance" report. A new ***web-based "Environment at a glance"***, building on interactive graphics, will be released end of October-November 2019.

Databases

Main datasets are available on the OECD statistical platform (http://dx.doi.org/10.1787/env-data-en) and some are accessible via the OECD iLibrary https://www.oecd-ilibrary.org/environment/data/oecd-environment-statistics_env-data-en. They include:

- Data and indicators on air and greenhouse gas emissions, people's exposure to air pollution by fine particulates, welfare costs of air pollution, waste generation and treatment, water resources and management, biodiversity, material resources, environmentally-related innovation and tax revenue, fossil fuel subsidies, trade and environment, etc.
- Data and indicators on the extent of protected areas without double-counting overlapping sites. Historic series for all countries in the world are produced using the World Database on Protected Areas (WDPA) and a GIS-based methodology developed by the OECD in consultation with its member countries.

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- Data and indicators on land cover and land cover change for all countries, produced using underlying global data from the European Space Agency, the Joint Research Centre and other agencies, and using GIS methodologies developed by the OECD in consultation with its member countries.
- The OECD set of green growth indicators (see also http://oe.cd/ggi).

Two new databases are being developed:

- The Sustainable Ocean Economy database that brings together OECD data related to the ocean economy. It will include new indicators such as marine ecosystem health, the well-being and resilience of coastal communities, economic opportunities from sustainable use of ocean resources, and data on taxes, subsidies and finance directed at ocean sustainability.
- The Geography of Well-being database that includes indicators on environmental inequalities at the local level. It is an outcome of the OECD geospatial data cube combining environmental and socio-economic data. The database will facilitate analyses of the interface of green growth and inclusive growth, and help countries address the distributional aspects of policies.

Improving the quality of international data on the environment

The OECD continues working with countries to consolidate and improve the quality of the data collected through its questionnaire. Since 2018, particular attention is given to data related to waste and water management, and data related to policy instruments for the environment.

Data on waste

To better respond to demands for information on waste streams that are of emerging policy interest or that require special management (WEEE, food waste, end-of life vehicles, plastics, construction and demolition waste, use of secondary raw materials in production processes, etc.), the OECD questionnaire section on waste and the related annual quality assurance are being reviewed. The OECD questionnaire provides, along with the coordinated UNSD/UN Environment questionnaire and reporting in the EU (Eurostat), a global country coverage for collecting data on waste management, including for SDG indicators on waste (i.e. indicators 11.6.1, 12.5.1 and 12.4.2). Collaboration and joint work with international partners (UNSD, Eurostat, Basel Convention Secretariat) are used to maintain a harmonised monitoring and coordinated data collection processes at global level.

In addition, a small expert group is being set-up to reflect on the information needs for resource efficiency and circular economy policies, and provide guidance on how best to move towards a new generation of data on waste and materials management.

Data on water

The OECD collects selected water data annually (resources, abstractions and use, wastewater treatment) and more comprehensive data biennially (discharges, quality). As for waste, this is done jointly with Eurostat and coordinated with UNSD; it provides a global country coverage for collecting data on water resources and management. The questionnaire section on water and the related annual quality assurance are currently being reviewed to better support OECD work on water management and policies, and properly cover the variables associated with selected SDG indicators. The review also includes a re-assessment of the questionnaire's coherence with the SEEA and the identification of variables that could be used to compile international water accounts.

To maintain a strong and effective international co-operation on global data collections on water, discussions are also taking place between the OECD, Eurostat and UNSD, and the FAO that launched an additional global data collection on water to populate the FAO Aquastat database and support the calculation of SDG indicators for which the FAO is the custodian. The objective is to reach an agreement on a consolidated and harmonised questionnaire and a coordinated data collection process (collected once, used multiple times), so as to avoid double reporting by countries.

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Data on policy instruments for the environment

Data on policy instruments for the environment are collected via a dedicated interface of the OECD PINE database (established in 1998) and a network of 200 country experts, including in government agencies (Ministries of Finance and Environment, National Statistical Institutes) as well as research institutes and international organisations.

The data and the database are continuously improved in order to better respond to evolving policy demands. More than 100 countries are currently providing data to the OECD PINE database; the country coverage increases every year. The database contains detailed information on over 3,500 policy instruments, including environmentally related taxes, fees and charges, subsidies and other instruments. The policy instruments are tagged into 12 environmental domains: air pollution, biodiversity, climate change, energy efficiency, land contamination, land management, natural resources, noise, ozone layer, transport, waste management and water pollution; an additional "ocean" tag is under development.

Detailed PINE data are available at http://oe.cd/pine; data on environmentally related tax revenue can be visualised at http://oe.cd/env-taxes and downloaded from https://stats.oecd.org/Index.aspx?DataSetCode=ENV_ENVPOLICY.

Monitoring environment related SDG targets

Turning the ambition of the SDGs into reality requires robust data to capture progress and evidence to inform decision making. The OECD is helping countries to track progress in several areas including green growth, well-being, water, climate, biodiversity, resource productivity, sustainable consumption and production. It supports countries in developing and using environmental and green growth indicators and has mainstreamed the SDGs in its country reviews. The OECD also supports developing countries in building their own statistical capacities and systems through the PARIS21 partnership.

The OECD is custodian or co-custodian for environment-related SDG indicators such as official development assistance, local participation in water management, climate finance. It supported the methodological development of several tier III indicators in the UN list of SDG indicators for global monitoring (e.g. fossil fuel subsidies, material footprints, waste recycling and management, water stress and use), co-operates with the relevant custodian agencies, and follows the work of the IAEG-SDGs as an observer. As part of the 2020 Comprehensive Review of the global indicator framework to monitor progress on the SDGs, the OECD proposed additional indicators based on information available in the OECD Policy Instruments for Environment (PINE) database to monitor targets 15.a/15.b and 17.14.

Monitoring material flows and resource productivity

To advance the development of an internationally harmonised methodology for estimating demand-based material flows (material footprints; SDG indicator 8.4.1/12.2.1), the OECD organised a series of expert workshops over 2014-2017 (with UN Environment and Eurostat), and commissioned expert reports to inform the discussions. In 2017, a consensus was reached that a ***harmonised input-output (I-O) based approach*** is best suited for international work, and that harmonised international databases are needed for demand-based applications. There is also consensus of the pre-requisites and developments needed to successfully implement an I-O based. A roadmap for further developing the measurement method and for consolidating and improving the statistical infrastructure was developed. The pre-requisites for a successful implementation of an internationally harmonised I-O based approach are:

- First, the selection of one institutionalised international MRIO database that would serve as a common core reference database.
- Second, the availability of an appropriate industry breakdown in the selected reference database.
- Third, the availability of a standard method for disaggregating MRIO databases, to ensure coherence with other international MRIOs and applications.

Work continues with country case studies to better understand differences in results obtained from international and national calculations, and eventually refine the calculation method. Final results are expected to be available in 2020; they would complement UN Environment's Global MFA Manual.

Linking environmental and economic statistics and implementing the SEEA

To advance the measurement of green growth and support environment-economy policy integration, the OECD encourages the development of environmental-economic accounts.

- Together with UNECE, it organises seminars on the implementation of the SEEA. The fourth OECD-UNECE seminar was held on 20-21 February 2019 in Geneva.
- The OECD Environment and Statistics Directorates develop methodologies to help compile internationally comparable accounts in line with the SEEA and work with Eurostat, the FAO, UN Environment and UNSD to establish global SEEA related databases, starting with energy, air emissions, material flows, land cover and possibly water.
- Work is also progressing as regards environmental protection expenditure and tax revenue accounts.

OECD – Natural asset accounts

The OECD methodology to estimate SEEA asset accounts for mineral and energy resources (in monetary and in physical terms) was released in March 2018 (https://doi.org/10.1787/3fcfcd7f-en). Physical accounts for selected countries are available on the OECD statistical platform.

(http://dotstat.oecd.org/Index.aspx?DataSetCode=NAT_RES).

OECD – Air emission accounts

The OECD methodology to estimate SEEA air emission accounts for CO_2, CH_4 and N_2O was released in December 2018 (https://www.oecd-ilibrary.org/economics/towards-global-seea-air-emission-accounts_7d88dfdd-en). The methodology was endorsed by the UNCEEA in June 2018. The emission accounts are available on the OECD statistical platform; they include:

- A dataset with official air emission accounts: it covers 33 European countries (available from Eurostat); and 4 non-European countries (Australia, Canada, New Zealand and Korea). (http://dotstat.oecd.org/Index.aspx?DataSetCode=AEA).
- A dataset with estimated air emission accounts for CO_2, CH_4 and N_2O, using the OECD methodology endorsed by the UNCEEA: it covers 5 countries; other countries will be added progressively. (http://dotstat.oecd.org/Index.aspx?DataSetCode=OECD-AEA).

OECD – Environmental Protection Expenditure Accounts

The OECD is aligning its environmental expenditure data collection with the System of Environmental-Economic Accounting (SEEA) and Eurostat's Environmental Protection Expenditure Account (EPEA) questionnaire, thus guaranteeing coherence with National Accounts data and variables. The first data collection using the new framework will be launched early October 2019; the questionnaire will be addressed to non-EU OECD members and interested partners.

OECD – Environmentally Related Tax Revenue accounts

In order to compile environmentally related tax revenue (ERTR) accounts in line with the SEEA, the OECD prepared methodological guidelines building on and expanding work by Eurostat. The guidelines have been tested with pilot countries (Australia, the Russian Federation and Costa Rica) and the support of Estonia, and are being finalised after consultation with the London Group on Environmental Accounting. A first data collection will be carried out in October 2019; it will complement data collection by Eurostat and will be addressed to non-EU OECD members and interested partners.

Monitoring and reforming government support measures for fossil fuels

The OECD Fossil Fuel Support Intelligence Unit supports efforts to reform fossil fuel subsidies by regularly updating its Inventory of Support Measures for Fossil Fuels and its companion reports. The OECD Inventory covers 44 countries (36 OECD member countries and 8 emerging economies) and close to 1,200 individual government policies that benefit the production and consumption of fossil fuels. Currently, fossil-fuel support amounts to USD 140 billion and at the global level, the combined IEA-OECD estimates represent a total of USD 340 billion in 2017, 5% higher than the 2016 level.

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The OECD is currently working to enhance the granularity of information on government support for fossil fuels to different sectors and will also tag ocean-relevant support measures for fossil fuels as a contribution to OECD work on sustainable oceans.

The OECD contributed its expertise in tracking and measuring government support for fossil fuels to the development of the methodology for the SDG indicator 12.c.1 to monitor the phasing out inefficient fossil fuel subsidies. In collaboration with UN Environment and the International Institute for Sustainable Development (IISD), the OECD produced the report *Measuring Fossil Fuel Subsidies in the Context of the Sustainable Development Goals* that was peer-reviewed and endorsed by the UN Committee on Environmental Economic Accounts (UNCEEA). The classification by the OECD is recommended as the most appropriate for SDG Indicator 12.c.1.

The OECD also supports countries in their efforts to reform fossil-fuel subsidies by chairing and facilitating the G20 voluntary peer reviews of inefficient fossil fuel subsidies, and by supporting efforts in other multi-lateral fora, such as APEC, the Friends of Fossil Fuel Subsidy Reform, the Paris Collaborative for Green Budgeting, and the Coalition of Finance Ministers on Climate Action.

http://www.oecd.org/fossil-fuels

UNECE NEWS

(Contributed by Tiina Luige and Michael Nagy)

The Fourth Joint OECD/UNECE Seminar on SEEA Implementation was held on 20-21 February 2019 in Geneva

The joint OECD/UNECE seminars provide a platform for exchange of knowledge and experience, and support the coordination of capacity development in the region, in line with the work programme of the Committee of Experts on Environmental-Economic Accounting. The 2019 seminar discussed the implementation of water accounts and its policy applications in the region, which is one of the priority accounts for the global SEEA databases. Furthermore, the seminar discussed environmentally related taxes and subsidies and SEEA Experimental Ecosystem Accounting with some practical examples of the region. More information can be found at http://www.unece.org/index.php?id=50357

The next UNECE Expert Forum for Producers and Users of Climate Change-related Statistics will be held on 2-3 October 2019

The main objective of the annual Expert Fora is to provide a platform for users and producers of climate change-related statistics to share experience in developing official statistics and capacity for climate change-related reporting.

The 2019 Forum will discuss the requirements for statistical information related to climate change adaptation and measuring hazardous events and disasters. Possible action points for statistical operationalisation of important terms, definitions and classifications used in the Paris Agreement and the Sendai Framework on Disaster Risk Reduction may be identified. The UNECE Task Force on a set of climate change-related indicators will inform about the progress of work and invite participants to provide feedback.

Countries will be invited to provide national case examples on the implementation of climate change-related statistics, and to discuss related challenges and solutions, including the use of new data sources such as big data and geospatial data.

The documents for the forum, including a registration link can be found at http://www.unece.org/index.php?id=50812

***Recommendations on Measuring Hazardous Events and Disasters* endorsed by the Conference of European Statisticians (CES)**

CES endorsed on 26 June 2019 the *Recommendations on Measuring Hazardous Events and Disasters* developed by a Task Force chaired by Italy. The Task Force included representatives of the major international organizations involved in this area, including ESCAP and UNISDR. The Recommendations clarify the possible role of national statistical offices and other members of national statistical systems in providing information related to hazardous events and disasters, and identify practical steps needed for these organizations, in coordination with national agencies responsible for disaster risk management, to better support disaster risk management efforts. CES supported continuation of work on statistical operationalisation of measuring hazardous events and disasters, as well as on other issues for further work listed in the Recommendations.

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The draft Recommendations prepared before CES are available at http://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2019/3_Hazardous_events_and_disasters_for_consultation.pdf. The final version will be prepared in autumn 2019 to take into account comments on the document received through electronic consultation.

Developing capacity on the use of environment statistics for SDG indicators in Russian Federation and Uzbekistan

On 9-21 March 2019 a Joint *ROSSTAT/UNECE/UNEP/OECD Workshop on environment-related SDG Indicators* was held in Moscow. The main objectives of the workshop were to discuss methodologies and possible data sources for producing selected environment-related SDG indicators with experts of the Russian Federal State Statistics Service (ROSSTAT), the Ministry of Natural Resources and Environment of the Russian Federation and other agencies in charge of producing and sharing the relevant data.

The workshop discussed how the Framework for the Development of Environment Statistics (FDES) and the System of Environmental-Economic Accounting (SEEA) can support the production of environmental indicators, including SDG indicators, and how the application of the principles of the Shared Environmental Information System (SEIS) can be used to share environmental information, including statistics and indicators.

Russian and international experts jointly reviewed the data and methodologies currently used to produce selected environment-related SDG indicators and drafted some recommendations on how fill data gaps and implement the methodologies of the SDG indicator metadata sheets.

More information, including all presentations, can be found at http://www.unece.org/index.php?id=51408

A similar national workshop was held on 12-14 June 2019 in Tashkent, Uzbekistan. The workshop was jointly organized by UNDP, UNEP, UNECE, UNESCAP, United Nations University, FAO and IUCN. Experts of the NSOs of Belarus and Kyrgyzstan shared their national experiences in producing environment statistics and environment-related SDG indicators.

National experts from the State Committee on Statistics, the Ministry of Economy and Industry, the State Committee on Ecology and Environmental Protection, the Center of Hydrometeorological Service under the Cabinet of Ministers, the Ministry of Housing and Communal Services, the Ministry of Water Management, the State Committee on Geology and Mineral Resources, the State Committee on Land Resources, Geodesy, Cartography and State Cadastre, the Ministry of Health care, the Ministry of finance as well as from the Westminster International University and the Academy of Sciences attended the meeting.

The workshop concluded with a set of recommendations regarding the further development of environment statistics and the production of SDG indicators in Uzbekistan.

More information can be found at http://www.unece.org/index.php?id=51862

Regional work on climate change at the EEA

(Contributed by Roberta Pignatelli, European Environment Agency)

The European Environment Agency (EEA), which just celebrated its 25th anniversary, has been a global pioneer in the creation of a single environmental monitoring network for Europe, by providing timely and targeted environmental information to policy makers and the public. Since 1994, this network has expanded from 12 European Union (EU) countries to 33 member and 6 cooperating countries across Europe. As the understanding of environmental problems grew, it became evident that environmental concerns needed to be integrated into overarching policy frameworks, both in Europe and globally; as a consequence, EU climate and energy policies are now more closely aligned, and mobility policies have become part of a larger long-term vision for climate-neutral economy by 2050.

In any policy discussion, it became increasingly clear that reliable information on the environment was key to designing and implementing effective policies. In parallel with evolving policy needs, new areas were added to the EEA's work remit over time. Today, the Agency's knowledge covers thematic analysis of single issues - such as greenhouse gas emissions and carbon dioxide emissions from new cars and vans - to more crosscutting and systemic analyses on climate change end energy, the food system, and social vulnerabilities due to unequal exposure to multiple environmental impacts. In addition, every five years, the EEA complements these assessments with the state and outlook of Europe's environment report (SOER), the 2020 edition of which will be published this December.

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Climate change is one of the most important challenges of our time, whose impacts affect people, nature and the economy across the globe. To mitigate climate change, we need to reduce global emissions of greenhouse gases significantly. Translating this overall objective into concrete measures requires understanding a complex system linking emissions from different sources to national and regional impacts, global governance and potential co-benefits. The EEA strives to continuously improve the knowledge needed for designing effective measures on the ground.

From a scientific perspective, in order to mitigate climate change, we need to reduce significantly the amount of greenhouse gases released and, if possible, to increase the amount captured. A close look at the economic activities that release greenhouse gases tells a rather complex story; in fact, we can pinpoint key activities responsible for the largest bulk of emissions. Another level of complexity is linked to the global nature of climate change: once released, the carbon dioxide in the atmosphere becomes a global problem, irrespective of the country and the sector releasing it. When it comes to reducing emissions, however, we rely almost entirely on political governance structures. Global efforts consist of countries' national commitments to limit and reduce their emissions. To do this, they need to know the source of their emissions.

In Europe, the amount of greenhouse gases released every year by each key economic sector and its sub-activities are closely monitored. Based on the data submitted by EU Member States, the EEA analyses trends and projections to assess progress towards the targets set for the EU as a whole and for each Member State. Our climate impacts and vulnerability assessments also show how all regions in Europe are affected by climate change, and how the specific impacts, vulnerabilities, and adaptation needs vary across Europe, depending on the current climate and its projected changes as well as on environmental and socio-economic factors. The Mediterranean region (southern and southeastern Europe) shows the largest number of sectors that are adversely affected by climate change. To foster action on climate change mitigation, EU Member States agreed on a number of climate and energy policies and set clear targets for 2020 and 2030. The EEA's assessments show that the EU is on track to meet its 2020 targets, but more effort is need to achieve the more ambitious 2030 targets. Countries, regions and cities and other actors also share information on how to adapt to a changing climate.

Climate change is also the subject of one third of the 122 indicators produced by the EEA, and three of them have just been updated. From the first one, 'Economic losses from climate-related extremes in Europe'[11], we learn that, in the EEA member countries, the total reported economic losses caused by weather and climate-related extremes in the period 1980 -2017 amounted to approximately EUR 453 billion (in 2017 Euro values) and over 70% of economic losses were caused by less than 3% of all unique registered events (the 2002 flood in Central Europe, the 2003 drought and heat wave, and the 1999 winter storm Lothar and 2000 flood in Italy and France). This assessment is based on the Munich Re NatCatSERVICE dataset and the Eurostat collection of economic indicators, whereas data from earlier years not covered by Eurostat have been completed using data from the Annual Macro-Economic Database of the European Commission (AMECO), the International Monetary Fund's (IMF) World Economic Outlook (WEO), the Total Economy Database (TED) and the World Bank database.

Based on an approach developed by the UK Met Office, the indicator on 'Heating and cooling degree days'[12] shows that the annual population-weighted heating degree days decreased by 6% between the periods 1950–1980 and 1981–2017, with the largest decrease occurring in northern Europe. The annual population-weighted cooling degree-days increased by 33% between the same periods, with the largest increase in southern Europe. These trends are projected to continue throughout the 21st century, exacerbating peaks in electricity demand in summer and thus threatening the stability of electricity networks during summer heatwaves, unless appropriate adaptation measures are taken.

The third indicator, on 'Global and European temperature'[13] , highlights that the last decade (2009–2018) was 0.91-0.96 °C warmer than the pre-industrial average, which makes it the warmest decade on record; 17 of the 18 warmest years on record, have occurred since 2000. Climate models project further increases in global average temperature over the 21st century (for the period 2081–2100 relative to 1986–2005) of between 0.3 °C and 1.7 °C for the lowest emissions scenario (RCP2.6) and between 2.6 °C and 4.8 °C for the highest emissions scenario (RCP8.5). All UNFCCC member countries have agreed on the long-term goal of keeping the increase in global average temperature to well below 2 °C compared with pre-industrial levels and have agreed to aim to limit the increase to 1.5 °C: for the three highest of the

[11] https://www.eea.europa.eu/data-and-maps/indicators/direct-losses-from-weather-disasters-3/assessment-2
[12] https://www.eea.europa.eu/data-and-maps/indicators/heating-degree-days-2/assessment
[13] https://www.eea.europa.eu/data-and-maps/indicators/global-and-european-temperature-9/assessment

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four Representative Concentration Pathways (RCPs)[14], the global average temperature increase is projected to exceed 2 ° C compared with pre-industrial levels by 2050. Under a high emissions scenario (RCP8.5), extreme heat waves as strong as those experienced by Europe since 2000, or even stronger, are projected to occur as often as every two years in the second half of the 21st century. In southern Europe, they are projected to be particularly strong.

Various data sets on trends in global and European temperature have been used for this indicator, including the CRUTEM4 dataset of the MET Office (UK), the GISS surface temperature produced by the Goddard Institute for Space Studies under NASA, the GlobalTemp surface temperature produced by the National Centres for Environmental Information of the National Oceanic and Atmospheric Administration (NOAA) and the ERA5 dataset maintained under the Copernicus Climate change Service (C3S).

This knowledge is essential. However, to formulate and implement effective measures, we also need systemic knowledge on the links between societal, environmental and economic trends. Prospective policy actions may also need to acknowledge region- and city-specific needs. The EEA's objective is to provide relevant and accessible knowledge to help policy makers and the public to act on timely, relevant and robust information. This means that our knowledge needs to grow wider and deeper, and evolve constantly to account for the systemic and complex nature of the challenges we face. In the case of climate change, we are working towards a future knowledge platform to support the EU's 2030 energy and climate objectives by better connecting existing knowledge, not only on climate and energy but also on other relevant domains like agriculture, transport and air quality.

RECENT EUROSTAT ACTIVITIES

(Contributed by Arturo de la Fuente, Eurostat)

An overview of Eurostat activities on environmental statistics, environmental accounts and sustainable development indicators can be found at: http://ec.europa.eu/eurostat/web/environment/overview. The following is a summary of developments in the last 6 months.

Sustainable Development Goals (SDGs) and other policy monitoring frameworks

Eurostat has a dedicated website for SDG indicators. The latest Eurostat SDG communication package was published in September 2018, including the full monitoring report on progress towards the SDGs in the EU context - edition 2018, the brochure with key findings as well as the new digital publication 'SDGs & me'. The list of SDG indicators for the upcoming 2019 report is available here.

Eurostat supports the methodological development of several tier III indicators in the UN list of SDG indicators for global monitoring, closely cooperating with the relevant custodian agencies, including FAO, UNEP, UN-Habitat, WHO, UN-Water, etc. Eurostat participates in the working groups of the Inter-agency and Expert Group on SDG indicators (IAEG-SDGs) on "Geo-spatial Information" and on "SDMX", and follows the work of the IAEG-SDGs as an observer.

Environmental statistics

Eurostat maintains the European Commission monitoring framework for the circular economy in this dedicated website and the resource efficiency scoreboard in this dedicated website. A website about climate change related statistics was also published. The online article on the driving forces behind climate change was updated in early autumn.

There results of the 2018 data collection on waste statistics according to Regulation (EC) 2150/2002 are published here (data for 2016). The online articles here and here are due for update in the next weeks. The results of the 2018 OECD/

[14] Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs) and aerosols and chemically active gases, as well as land use/land cover (Moss et al., 2008). The word representative signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing characteristics. The term pathway emphasizes the fact that not only the long-term concentration levels but also the trajectory taken over time to reach that outcome are of interest (Moss et al., 2010). Source: Glossary, IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., *et al.*(eds.) - In Press)

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Eurostat Joint Questionnaire on municipal waste are published this online article. The data collections on waste streams (packaging waste, waste electric and electronic equipment, end of life vehicles and batteries) were completed in September-October and there data published here. Also updated were the online articles on electrical and electronic equipment, waste packaging and batteries.

The 2018 data collection on inland waters, including regional information, had a reporting deadline of end 2018 and publication will take place in the next weeks. There is enhanced methodological coordination with OECD, FAO and UNSD to better serve the information needs of SDG 6 – Water and sanitation. The results of forestry statistics are available in this article. Data on the production and trade in wood products collected with the Joint Forest Sector Questionnaire were published. Both physical and monetary forest accounting data are published and new data for the reference year 2016 are being collected with the European Forest Accounts questionnaire. An overview of data published on forestry and forests by Eurostat can be accessed on this link.

SEEA environmental accounts

The results of the 2018 data collection for air emission accounts (2017 data) were published.

The early estimates of material flow accounts (2017 data) were published in July and the online article updated.

The 2018 data collections on environmental taxes (2017 data), and energy accounts were also published in this article. The data collections for material flows, environmental sector and environmental protection expenditure have reporting deadlines end December and are due for publication in late spring 2019. All these data collections are annual and mandatory for EU Member States. Eurostat publishes the data results in the Eurostat online database, as well as articles (see Statistics Explained pages) and other material (see dedicated section on environmental statistics). Eurostat also publishes air emission footprints and two datasets with material footprints (aggregate and detailed).

Eurostat co-ordinates an experimental project on an integrated system of national capital and ecosystem series accounting (KIP INCA) in collaboration with other EU partners. The final report on the first phase of the project (on feasibility and design) is available here. The second phase (on implementation) is advancing and scheduled to end in 2020. Latest results on some ecosystem services accounts are available in this report. The full list of published INCA output can be found in the methodology section under 'Ecosystem accounts'.

Eurostat also facilitated training courses on environmental statistics and SEEA for European compilers. Material from past courses is available here. Next scheduled courses are: Economy-Wide Material Flow Accounts (Vienna, 4 - 5 September 2019), Introduction to experimental Ecosystem extent and Services Accounting based on SEEA-EEA (London, 1–3 October 2019), Monetary Environmental Accounts (Luxembourg, 22 – 24 October 2019).

Capacity building programme on the development of Environmental-Economic Accounts in Africa

(Contributed by Flintull Annica Eriksson, United Nations Economic Commission for Africa)

In September 2018, the African Centre of Statistic's (ACS) at the United Nations Economic Commission for Africa (ECA) launched the third phase of the capacity building programme on the System of Environmental-Economic Accounting (SEEA-CF) in Africa.

During 2018, phase I and II were conducted beginning with an online e-training, followed by a regional seminar in Pretoria, South Africa which included hands-on guidance for compiling different sets of accounts with the SEEA-CF. After this regional seminar, six pilot countries were selected to join the third phase of the capacity building programme. Among these six pilot countries, three of the countries chose to develop Energy Accounts, and three countries chose to develop Forestry Accounts. The Forestry Accounts are jointly being developed with FAO.

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This programme will support African countries to develop environmental-economic accounts in their national statistical systems. The objectives of the programme are:

a) Strengthen the countries technical capacity in producing these accounts.

b) Create a roadmap for the continuous development of environmental-economic accounts once the pilot project finalizes at the end of 2019.

c) Increase awareness among high level officials, academia and research institutions, private sector, and civil society organisations.

d) Derive some Sustainable Development Goal (SDG) indicators, relating to Goal 7 from the Energy Accounts.

The demand from the stakeholders to develop Energy Accounts is high, as it has been recognized by many governments in Africa that natural resources play a key role towards the social and economic development of the countries. Hence, there is a great need to improve and expand environmental-economic accounts in order to meet policy demands, as well as establishing baseline data for measuring the SDG 7 on Energy.

The ACS is organizing a regional seminar from 2-6 September 2019 at ECA's Headquarters in Addis Ababa with the six pilot countries where the aim is to gather the participating countries in order to share country experiences with developing Energy and Forestry Accounts and jointly discuss the application and use of the accounts.

The national workshops with technical assistance from ECA will continue throughout the third and fourth quarter of 2019, and the final results are expected to be disseminated in December 2019.

ECLAC Activities in Latin America and the Caribbean

(Contributed by the Statistics Division, Economic Commission for Latin America and the Caribbean)

Eighteenth meeting of the Executive Committee of the Statistical Conference of the Americas of ECLAC

The meeting analysed the priorities for regional statistical development and considered how to address these through collaborative work by the countries. Regarding environment statistics, the LAC National Statistical Offices prioritized natural resources use and degradation statistics, climate change occurrence, impact and adaptation statistics, and disaster-related statistics.

ECLAC support to Cuba, Honduras and Uruguay for SDG environment indicators production

As part of the 10th Tranche UN Development Account (DA) project and the ECLAC-German Cooperation programme, ECLAC organized two technical assistance missions on environment indicators production: a specific one on climate change adaptation indicators in Uruguay in February 2019 and a general one on environment SDG indicators in Honduras in March 2019. In Uruguay, a one-day and half national workshop allowed an inter-institutional use of the Environment Statistics Self-Assessment Tool and focused on indicators related to climate change adaptation (water, energy, agriculture, coasts and cities) and extreme events and disasters. In Honduras, the one-day and half national workshop was attended by more than 80 persons from 29 institutions (including six Ministries, two members of Parliament, subnational governments and academia). It was opened by the Minister of Environment, the Director of the National Statistical Office and the UN Resident Coordinator, and focused on SDG environment indicators related to forests, water and disasters.

Additionally, and in collaboration with the Ministry of Environment and the National Statistical Office of Cuba, ECLAC delivered a national capacity-building workshop in Cuba in February 2019 on SDG environment indicators. As a result of a deep inter-institutional work with more than 50 participants, 8 new environment indicators were calculated with national data and included fully-fleshed metadata. The new environment indicators are related to forests, energy, disasters, environment expenditure and biodiversity.

Climate change and disaster-related statistics side-events at the 2019 Forum of the Countries of Latin America and the Caribbean on Sustainable Development

In April 2019, ECLAC organized the Third Meeting of the Forum of the Countries of Latin America and the Caribbean on Sustainable Development, which gathered more than 2,000 participants from more than 25 Latin American and the Caribbean countries.

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There, the Environment Statistics team organized two well-attended side-events on climate change and disaster-related statistics. The first one, held on Wednesday 24 April and co-organized with ECLAC Subregional Headquarters for the Caribbean, was specifically focused on the English-speaking Caribbean countries with key notes messages delivered by Ministers from Trinidad and Tobago and Saint Lucia. The second one, held on Thursday 25 April 2019, was delivered by five countries, which are members of the Statistical Conference of the Americas' Disaster-Risk Reduction Statistics Working Group, i.e., Chile, Dominican Republic, Cuba, México and Peru. Special attention was given to the dialogue between disaster-related statistics producers and the use of these statistics by decision-makers, closing the side-event the Minister of Economy of the Dominican Republic, Mr. Isidoro Santana.

Regional Network of Environment Statistics: Sixth Webinar on Use of Administrative Records for Environment Indicators Production

Within the framework of the Regional Network of Environment Statistics, which gathers now more than 150 practitioners from all 20 Latin American countries, ECLAC organized its sixth webinar on Use of Administrative Records for Environment Indicators Production in January 2019. The goal of the webinar was to share experiences from Costa-Rica (water statistics), Ecuador (solid waste statistics) and Mexico (environmental conflicts and pollution statistics). More than 35 officers from National Statistical Offices, Central Banks and Environment Ministries from 9 LAC countries attended the online event.

ECLAC Regular Data Collection on Environment Statistics: CEPALSTAT and Statistical Yearbook 2019

ECLAC's environment statistics team is carrying out the compilation and validation of environment statistics data series to update the CEPALSTAT database with the most recent data (http://estadisticas.cepal.org/cepalstat/WEB_CEPALSTAT/Portada.asp?idioma=i). It includes new environment series to better showcase the most relevant issues in the Latin American and Caribbean region, in particular energy and oceans ones.

ESCAP NEWS

(Contributed by ESCAP Statistics Division, ESCAP Pacific Office and SIAP)

6th Meeting of the Expert Group on Disaster-related Statistics in Asia and the Pacific

The Expert Group on Disaster-related Statistics in Asia and the Pacific was established in 2014 as requested by ESCAP, to develop a basic range of disaster related statistics for the advancement of evidence-based disaster risk reduction and in support of implementation of the internationally agreed development goals. In response to this request, the Expert Group developed the Disaster-related Statistics Framework (DRSF) and was completed in 2018, along with the recommendation for international cooperation towards increased harmonization of statistics and strengthened capacities of national statistical systems with producing and utilizing the basic range of disaster-related statistics.

The 6th and the last meeting of the expert Group was held last 23-25 April 2019. Sixty (60) experts from twenty-three (23) Asia and Pacific countries and from international organizations and non-government organizations participated and contributed to the discussions. The meeting was preceded by the Regional Meeting on Gender Statistics in Climate and Disaster Risk Reduction co-organized by UN Women and UNESCAP on 22 April 2019. The workshop's three-day program of activities centered around sharing of the accomplishments of the expert group and exchanging country case studies, initiatives and good practices in the production of disaster related statistics. Further, the countries expressed and identified their training needs on specific areas of disaster-related statistics and were informed on the international initiatives and available opportunities for capacity development, among others. Finally, the priorities and modalities of future work were identified: 1) transitioning of the expert group into a Technical Working Group (TWG), as recommended to the Commission in 2018 in a report by the 5th Meeting of the Expert Group; 2) experts agreeing on priority actions and requirements for each country, in accordance with the current context and roles of their institutions; and 3) listing of new areas of research and methodological development for disaster-related statistics for consideration by the TWG for further study.

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Technical assistance on FDES/SEEA implementation (December 2018-May 2019)

- First national workshops on ocean accounts, Bangkok, Thailand, 15 January 2019; Putrajaya, Malaysia, 3-5 April 2019; Hanoi, Viet Nam, 23-25 April 2019; Apia, Samoa, 6-8 May 2019; and, Beijing, China, 15-17 May 2019;
- Scoping mission on ocean accounts, Apia, Samoa, 11-15 February 2019
- Workshop on valuing ecosystem goods and services and natural capital on the tropical Chinese coast, Guangzhou, China, 21-23 February 2019;
- Training workshop on water, solid waste and air emissions accounts, Ulaanbaatar, Mongolia, 11-14 March 2019;
- Technical assistance mission on water, solid waste and energy accounts, Apia, Samoa, 9-10 May 2019.
- Training on energy accounts at the Joint IEA for EU4Energy/UNECE/UNESCAP statistics workshop on energy statistics for use in policy tracking, Dushanbe, Tajikistan, 21-22 May 2019.

Upcoming activities (June-December 2019)

- Training workshop on environment-related SDG indicators, Uzbekistan, 12-14 June 2019
- Technical assistance mission on land accounts for Thailand, Fiji and Vanuatu, July 2019;
- Technical assistance mission on water and solid waste accounts, Malé, Maldives, August 2019;
- One-week training programme on environment statistics including indicators related to climate change, SIAP, Chiba, Japan, 2-6 September 2019.
- Regional expert workshop on waste accounts, Bangkok, Thailand, September 2019;
- Second national workshops on ocean accounts (China, Malaysia, Samoa, Thailand and Viet Nam), October-November 2019;
- Second expert workshop on ocean accounts, Bangkok, Thailand, November 2019;
- Sub-regional training on energy accounts with UNECE and UNSD, TBC.
- Consultation draft on "Technical Guidance on Ocean Accounting" available June 2019; Consultation open until November 2019; Release of final December 2019.

COUNTRY NEWS

Climate change related statistics: Luxembourg experience

(Contributed by Olivier Thunus, Institut national de la statistique et des études économiques (STATEC))

In April 2014, more than 60 countries and international organizations that are members of the Conference of European Statisticians endorsed the first ever recommendations on climate change-related statistics (CCRS).

Aiming to help with the implementation of these recommendations, a Steering Group was created with several objectives, including organizing annual meetings for producers and users of CCRS. During the Expert Forum in September 2015, a helpful tool aiming to evaluate the level of development of CCRS system and to prioritize the most important actions was presented. Its national application to the situation in Luxembourg has led to the establishment of the first national roadmap in this new statistical field.

The main measures requested by the national roadmap were to:

- reinforce data exchanges between the Environment agency (responsible for establishment of GHG inventories) and STATEC (producer of energy statistics and environmental accounts), with the objective to use consistent data sources for producing energy balances, GHG inventories and Air emission accounts.

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- impose CCRS as a new topic on the agenda of the biannual working group on environment statistics, with the objective to generate synergies for the production of useful statistics supporting decision-making.
- start methodological work aiming to lead to the establishment of a national list of climate change-related indicators (CCRI).

A huge achievement has been accomplished recently on this last action with the endorsement, in June 2019, of the first national list. This list is the result of a long work programme spread out over several years.

During the first phase, STATEC experts had to gain experience by participating in international discussions on this new transversal topic. They have notably supported the work of a dedicated UNECE Task Force, which allows them to test the compilation of future recommended key indicators.

A second phase has been dedicated to implement a selection process for national indicators organized in three steps:

1. To select a list of climate change-related key indicators applying three criteria: relevance for the country, methodological soundness and data quality.
2. To fill in this list with conceptual indicators which increase the understanding of the national context.
3. To validate these choices by a panel of environment experts.

The third on-going phase is to take the required actions for the regular compilation and publication of the indicators. In addition to the description of their metadata, STATEC has received the mandate to update annually these national climate change-related indicators and publish them on its official statistics web portal. Technically, the transversal nature of this topic has led to the decision not to create a new database but to integrate these indicators into the existing environment indicators repository and to identify them with a dedicated flag.

Interested readers will find more information on the following website:
https://statistiques.public.lu/en/territory-environment/index.html

Scenario analysis of improving the recycling rate of municipal solid waste in Japan using national statistical data

(Contributed by Kosuke Kawai, National Institute for Environmental Studies (NIES), Japan)

The Ministry of Health and Welfare in Japan initially published the annual statistics on municipal solid waste (MSW) in 1974 revealing the data at national level for information such as: the population with collection service; the amount of MSW collected; the number of waste treatment facilities and landfill sites and their total capacities; and total energy recovery at incineration plants. Since then, the statistics on MSW have been aggregated from the municipal to national levels, and been published annually. More detailed statistics on MSW from 1998 and onwards which have compiled the data in all municipalities of Japan can be downloaded from the Ministry of Environment's website: (http://www.env.go.jp/recycle/waste_tech/ippan/stats.html, in Japanese).

The Ministry of the Environment of Japan set three national targets on MSW management to be achieved by 2020; 1) reduction of waste generation by 12% from that in 2012, 2) a recycling rate of 27%; and 3) a reduction of final disposal (landfill) by 14% from that in 2012. These three indicators can be monitored with the national statistics mentioned above by aggregating data in each municipality. Thanks to depopulation, economic depression and the efforts of citizens, local governments and business entities to reduce waste, the volume of MSW generation and final disposal have reduced constantly, and it is highly possible that two of the targets in 2020 will be achieved. However, the recycling rate of MSW has stagnated and not exceeded 21% since 2007. The most probable reason the recycling rate in Japan is relatively low compared to other OECD countries is that a large proportion of MSW is treated at incineration facilities. Currently, more than 1100 incineration facilities are operated to treat 32.8 million tonnes of MSW which is about 80% of total MSW generation. Aside from waste that is incinerated, recyclable waste, especially containers and packaging waste, have been actively collected all over Japan. However, food waste has normally been collected together with combustible waste and treated at incineration facilities to keep sanitary in the humid summer season and to reduce the volume of waste for landfill.

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NIES designed a scenario in which food waste would be separately collected and treated at composting facilities and analyzed what the change in the recycling rate would be. The national statistics on MSW management were applied for calculating the recycling rate. Based on the information on population and farmland areas in the 149 municipalities where food waste was collected separately and treated at composting facilities, it was assumed that a municipality could newly start composting food waste if it had more than 142 m^2 per capita of farmland area in the administrative area. As a result of the scenario analysis, the national recycling rate in Japan would increase to at most 22.9% due to the promotion of food waste recycling

The Environmental Statistics in Palestine

(Contributed by the Palestinian Central Bureau of Statistics)

In almost every field of social and economic statistics, there is a vital complementary component that is environment statistics which is a critical and sensitive issue, especially in Palestine, due to the limited natural resources and the damage to the environment caused by occupation. Providing and updating environment statistics is highly essential for the sustainability of the environment.

The Environment Statistics Department at the Palestinian Central Bureau of Statistics (PCBS) was established in 1997, and it is in charge of producing and updating data on the statistical indicators of the pressure on the environment and mainly in the following themes: Water and Wastewater, Solid Waste, Emissions to Air and Air quality, Meteorology, Biodiversity, Sustainable Development and Environmental Accounts (https://www.pcbs.gov.ps/pcbs_2012/Publications.aspx?cat_id=12).

Environment Statistics in Palestine uses the "**Glossary of Environment Statistics**" which was published by the United Nations Statistics Division in 1997, as a handbook for environmental definitions taking into account the Palestinian context in this field. Besides the UN definitions, the environmental indicators in Palestine are also consistent with those of the European Environment Agency (EEA). Environment Statistics in Palestine periodically reviews the State of Environment Reports (SOERs) that are published by the European Union countries and others such as Norway, Sweden, Finland, Turkey and the United States and compare the published indicators with those published in Palestine to keep them updated in developing the environmental indicators.

Concerning the **Institutional cooperation**, the Environment Statistics Department signed many Memoranda of Understandings (MoUs) with the relevant ministries to ensure facilitating data flow with those ministries, and the Environment Statistics Department also benefits from other MoUs that were signed by other Departments at PCBS. The said MoUs were with many institutions and ministries such as: Ministry of Transport, Ministry of Local Governance, Environment Quality Authority, Ministry of Education, Ministry of Health, Palestinian Water Authority, in addition to universities and private sector institutions.

One of the achievements in this field is forming a national team for the establishment of the Palestinian Environmental Information System. The aim of forming such a team is to ensure unifying efforts and enhancing coordination of the work on environment statistics among the environmental national agencies and to establish the Palestinian Environmental Information System in cooperation with the EEA and ENPI-ESIS project. The team members represent most of the agencies that are involved in the field of environment.

Concerning the **framework** used to develop the Palestinian environmental indicators, the Driving force–Pressure-State-Response model has been used to develop the Palestinian indicators in this field. Recently, the United Nations Statistical Commission endorsed the Framework for the Development of Environment Statistics (FDES 2013) and urged the countries to implement the framework. It is worth mentioning that Palestine has the needed infrastructure to implement the FDES 2013; a national statistical system, National Strategy for the Development of Statistics (NSDS), National Team for the Establishment of the Palestinian Environmental Information System, good networking system (participating in global and regional communities), and all the capabilities to start the implementation of this framework. It is planned to start this process as soon as possible during the year 2019.

Concerning the **challenges in the implementation of the framework**, we have the following: some of the environmental data are not available right now, those data need more financial resources, and some of those data are not applicable to the Palestinian situation.

Concerning the **Environment and SDGs**, the environment in Palestine was adopted as a cross-sectoral theme in the Environment Strategy 2017-2022, a new turning point in the environmental action process. The strategy took into

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consideration all other sectors, each of which had the appropriate environmental policies that needed to integrate the environmental dimension into sectoral strategies and policies. Where other sectors cannot work without paying attention to the environment, either through the adoption of policies incorporated in the sectoral environment strategy at the minimum, or through the development of policy interventions to translate those policies into each of those sectors. This strategy also covered most of the targets of sustainable development goals and the interventions required for each target.

Demonstrating the State of Palestine's commitment to achieving the Sustainable Development Agenda, this Voluntary National Review (VNR) aims to provide detailed information about the status of Palestine's path towards implementing and achieving the SDGs was presented to the international community at the High-Level Political Forum (HLPF) in 2018. The report "PALESTINIAN NATIONAL VOLUNTARY REVIEW ON THE IMPLEMENTATION OF THE 2030 AGENDA" can be found on the following link:
https://sustainabledevelopment.un.org/content/documents/20024VNR2018PalestineNEWYORK.pdf

Rwanda Environment Management Authority (REMA) Produces the National Compendium of Environment Statistics 2018

(Contributed by Emmanuel Habimana, Rwanda Environment Management Authority)

The National law N°63/2013 of 27/08/2013 determining the mission, organization and functioning of Rwanda Environment Management Authority (REMA), states that collection of data, analysis and publication of environment statistics have a crucial role in fulfilling its institutional mission.

With specific provision in article 3 of the very law, one key point of REMA's mission, as the authority in charge of supervising, monitoring and ensuring that issues relating to the environment are integrated in all national development programmes, is to conduct studies, research, investigations and other relevant activities in the environmental field and publish the findings.

In this regard, all dynamics pertaining to sustainable development, such as biodiversity protection, ecosystem rehabilitation, pollution control, environmental education and mainstreaming, climate change, green growth and climate resilience strategies, need to be monitored and systematically presented in a way that enables all users of environmental information to be pro-actively engaged in environmental policy implementation.

In order to achieve the goal of setting-up a user-centred approach of systematic monitoring and dissemination of environmental information and statistics, the Environment and Climate Change (ECC) sub-sector needs to put in place a regular statistical study which has to capture inclusively the said dynamics within a strong information system abiding to national, regional & international standards. The best way to formalize this task is to prepare the Compendium of Environment Statistics of Rwanda, which can be elaborated at least every two years and linked to UNSD's website at: https://unstats.un.org/unsd/envstats/fdescompendia.cshtml.

The Compendium of Environment Statistics is meant to introduce the rationale of using simple messages, thematic illustrations, graphic visualizations and statistical facts & figures to portray the complex dynamics of sustainable development. This will serve the purpose of turning technical insights of environmental concerns into captivating infographics and user-friendly charts for public awareness.

Depending on available resources, REMA is committed to conduct monthly sessions of field visits to keep the record of recent achievements. It is by the end of each quarter that progressive reports are to be produced to track the change in actual figures of implementation performance by departments/projects towards achieving the targets set as of their respective areas of interventions. Thereof this initiative comes for turning institutional reports into a statistical conversant summary for decision makers.

Having in mind that elaborating a compendium of all figures pertaining to the environment is a huge and cumbersome task, REMA has initiated a network of institutional collaboration, which is commonly called "Rwanda Environment Information Network" (REIN). This network has evolved through a participatory and consultative process involving the entire Environment & Natural Resources sector & stakeholders, including both the public and private sectors, national and sub-national institutions, civil society and development partners.

Various institutional delegates aggregated in different working groups undertook desk research, and the team has performed their respective assignments based on 21 sub-components of the FDES structure.

Due to the crosscutting nature of environment variables, the initial session of consultation with key sectors, as identified

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in REIN, has lasted about 4 months i.e. from 24 August 2018 to 20 December 2018. The lead institutions and other members within the working groups were consulted through focused group discussions and e-mail messages containing helpful inputs to the draft inception work presented by a private consultant.

This collaboration framework revealed the need for improved coordination and capacity development within our stakeholders. It demonstrates how smart our structures tend to become if we go on building synergy through meetings, statistical symposia & workshops even at decentralized levels such as districts. While developing this compendium of environment statistics of Rwanda, it has been noticed that a number of institutions still lack statistical literacy in their reporting procedures. This calls upon an advocacy effort to mobilize some special funds towards mainstreaming of a statistical capacity building programme geared to training our statisticians and staff in charge of planning, monitoring & evaluation activities, basically in various government institutions.

The fifth edition of the Integrated Household Living Conditions Survey was published by the end 2018; and one thematic report on Environment & Natural Resources is derived among others, to portray the current picture of how climate factors & population density are implying more pressure on environmental resources.

As per some sayings of the National Institute of Statistics of Rwanda (NISR): The Director General of REMA, Eng. Coletha RUHAMYA recalled all team players that it is the right time to deliver green economy ways of thinking through publication of statistical evidence, which can inspire behaviour change towards reducing every one's ecological footprint and piloting low carbon production systems.

> *"If we don't count for energy resource efficiency, our industrial development doesn't count; if we don't count for the rational use of fertilizers and other chemical substances applied for crops production, our agricultural sector doesn't count sustainably. Yet we need to turn it into a green one, modernized and climate-proof. The same reasoning of sustainability must always be applied to transport & infrastructure, eco-tourism, forest, water and land resources, Settlement and public sanitation issues just to list few; as we are going to detail them within this work"* she reminded all participants within the validation meeting.

This initial Compendium of Environment Statistics has specifically capitalized on official statistics published by the NISR as well as some administrative records from several sectors pertaining to the Environment & Climate Change (ECC) subsector. It highlights a wide range of information about the state and changes of environmental conditions, the quality and availability of environmental resources, the impact of human activities and natural events on the environment, as well as the measures taken by societies to avoid or mitigate impacts and to restore and maintain the normal cycle of ecosystem services.

This compendium is intended to serve as an entry point stepping towards further compendia with some emphasis on respective sector-related environmental statistics. For a successful process of validating the findings from this work, our main partners have always been the representatives from Government Institutions, National environmental NGOs, and individual researchers from High Learning Institutions, and Nature Based Community Organizations across the country.

We all recognize that the environment cannot be taken as a responsibility of one single institution; this is why data collection, results validation and ownership engage about 40 representatives coming mainly from the following key institutions: Public Sector Federation (PSF/Commerce), Public Sector Federation (PSF/Industries), Ministry of Youth (MINIYOUTH), Public Sector Federation (PSF/ Agriculture), Rwanda Water and Forestry Authority (RWFA), Rwanda Development Board (RDB), Ministry of Health (MINISANTE), Rwanda Biomedical Center (RBC); Rwanda Housing Authority (RHA), Association pour la Conservation de la Nature au Rwanda (ACNR); Rwanda Energy Group (REG/EUCL); National Industrial Research and Development Agency (NIRDA); Ministry of Infrastructure (MININFRA); Water and Sanitation Corporation (WASAC); Rwanda Standards Boards (RSB); Albertine Rift Conservation Society (ARCOS); Wildlife Conservation Society (WCS) Rwanda; Ministry of Environment (MoE); National Institute of Statistics of Rwanda (NISR); Rwanda Environment Management Authority (REMA); Rwanda National Police (RNP); Rwanda Mining, Gas & Petroleum Board; City of Kigali; MoE/ Natural Capital Account (NCA), Ministry of Local Government (MINALOC), Ministry of Education (MINEDUC); Ministry of Trade (MINICOM); Rwanda Transport Development Agency (RTDA); Rwanda Governance Board (RGB); Rwanda Energy Group (REG/EDCL); Rwanda Utilities Regulatory Authority (RURA); Rwanda Meteorological Agency (METEO); and Ministry of Agriculture & Animal Resources (MINAGRI).

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PROPOSED ROADMAP FOR REGULAR ELABORATION OF ENVIRONMENT & CLIMATE CHANGE (ECC) FACTS SHEETS

Timeframe	Planned Activity	Recurrent/Main Deliverables
January	Conducting field works and desk-review on major areas of ECC sub-sector achievements	♦ Review & take notes from existing documentation ♦ Common agreement on the appropriate methodology ♦ Draft concept note prepared
February- April		♦ Field works for recording REMA projects milestones ♦ Analysis & aggregation of findings ♦ Design of draft statistical fact-sheets
May -June		Field works for recording REMA projects milestones* Preparation & update of data templates for quarterly reports Final edition of a statistical summary for decision makers
New financial year		
July-August	Inter-institutional collaboration for documenting ECC information updates	♦ Meeting with REIN representatives from all partner institutions ♦ Field works for recording cross-cutting milestones, if really needed* ♦ Hire the consultant for graphic design support service
September - October		♦ Disseminate relevant documents & tools for improved awareness and ECC mainstreaming ♦ Coordinate secondary data collection form various stakeholders* ♦ Field works for recording cross-cutting milestones, if really needed
November		♦ Conduct a Joint Sector Review (JSR) meeting to validate the updates of preliminary shared figures ♦ Integrate final comments from participants in the JSR
December	Proofreading, publication and dissemination of ECC scorecard	♦ Synthesize the figures, environmental trends & Aggregation of findings ♦ Draft the thematic infographics, statistical visualizations and summary notes for publication. ♦ Work with the consultant for graphic design support services and disseminate the annual release.

*Those are monthly recurrent tasks that one may perform or omit repetitively depending on available means and the prevailing demand.

Tanzania Moves to Streamline Production of Climate Change and E-Waste Statistics

(Contributed by Ruth Minja, National Bureau of Statistics -Tanzania)

Tanzania's natural resources and environment are the main source of peoples' livelihoods and are the backbone of the country's main productive sectors such as agriculture, tourism, fisheries and mining. The relationship between economic development and rational management of the environment and natural resources is emphasized in the National Environmental Policy, 1997 which is currently under review, the National Five Year Development Plan, 2016/17-2020/21 and the UN Sustainable Development Goals (SDGs). On the other hand, Tanzania like many other developing countries, is vulnerable to increased climate change and its impacts which are affecting countries' efforts in achieving sustainable development. Some of these challenges include; persistent drought and extreme weather events, rising sea levels, coastal erosion, ocean acidification and further threatening food security, water, energy and health.

In addressing these challenges, the National Bureau of Statistics (NBS) has been taking several initiatives to strengthen production of environment and climate change statistics for informed decisions in monitoring implementation of different environment related development frameworks. According to the data gaps assessment conducted by the NBS in the implementation of the UN Framework for the Development of Environment Statistics (FDES 2013), the results indicated that among the three pillars of SDGs (economic growth; social development; and environment), there is a huge data gap for monitoring the environment pillar, particularly for the area of climate change statistics. The assessment informed of the national status of data availability; accessibility; institutional capacity gaps; and other related variables.

The National Bureau of Statistics has been working hard in collaboration with the United Nations Statistics Division (UNSD), UN Environment (UNEP), United Nations University (UNU), German International Cooperation (GIZ), Global Partnership for Sustainable Development Data (GPSDD) and several national stakeholders in strengthening compilation of environment statistics, including climate change statistics and e-waste statistics. Among the efforts includes the establishment of the National Technical Working Group on Environment Statistics, preparation of the first National Environment Statistics Action Plan which ended June 2018, production and dissemination of the first comprehensive National Environment Statistics Report, 2017 which is according to the FDES 2013, inauguration of the National Environmental and Climate Change Data Collaborative, and the work in progress on compilation of climate change and Electrical and Electronic Equipment (EEE) waste (e-waste) statistics reports.

The National Environmental and Climate Change Data Collaborative is a multi-stakeholder platform which take on board state and non-state actors working in the area of climate change. It sets up the national institutional arrangement required to address data needs for all aspects of climate change, from drivers, evidence, impact and vulnerability and; adaptation and mitigation. The Data Collaborative is also meant to: strengthen stakeholder's efforts to improve data availability; accessibility; use of environment and climate change statistics in decision making; serve as an avenue for lobbying and mobilization of resources for environment and climate change related data generation. This is critical for ensuring sustainability of data production, access and use. The expected output for this program is the production of the first **National Climate Change Statistics Report in 2019.** The Report will feature climate change statistics to feed data and statistical evidence into national, regional and global strategies for combating climate change.

Tanzania is also making good progress in data production for e-waste statistics. In this area, NBS is working in collaboration with the United Nations University (UNU) under its Sustainable Cycle Program. UNU provides technical assistance to NBS on methodology for estimating e-waste generated from trade data (production; importation and exportation) of Electrical and Electronic Equipment (EEE). Collaborations between NBS and UNU will enable the production of e-waste statistics report which will provide baseline information for informed decisions on e-waste management which has been an important emerging environmental concern in the country.

As the way forward, the National Bureau of Statistics is planning to conduct stakeholder's workshop to validate the draft 2019 National Climate Change Statistics Report and the 2019 E-Waste Statistics Report to ensure all concerns are well captured in the reports for informed decisions. These reports are planned to be disseminated by end of July 2019. However, the National Bureau of Statistics will ensure effective implementation of the second National Environment Statistics Action Plan for the period of July 2018 to June 2020.

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