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Progress in the implementation of resolution 4/23, entitled "Keeping the world environment under review: enhancing the United Nations Environment Programme science-policy interface and endorsement of the *Global Environment Outlook*"

Report of the Executive Director

Introduction

1.   In its resolution 4/23, entitled "Keeping the world environment under review: enhancing the United Nations Environment Programme science-policy interface and endorsement of the *Global Environment Outlook*", the United Nations Environment Assembly of the United Nations Environment Programme (UNEP) requested the Executive Director of UNEP to ensure the continued provision of scientific assessments to underpin policy debates; strengthen environmental monitoring and assessment; develop a new data strategy; chart the future of the *Global Environment Outlook* process; prepare a science-policy input for the commemoration, in 2022, of the fiftieth anniversary of the creation of UNEP and of the United Nations Conference on the Human Environment, held in Stockholm from 5 to 16 June 1972; and measure progress towards the achievement of internationally agreed environmental goals. The resolution is implemented under subprogramme 7, Environment under review, of the UNEP programme of work for the period 2018–2021.

2.   The present report describes actions taken by the Executive Director to address the requests in resolution 4/23 and lessons learned to date. An update to the report will be provided for the resumed fifth session of the Environment Assembly, at which substantive discussions on the resolution are expected to take place.

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* In accordance with the decisions taken at the meeting of the Bureau of the United Nations Environment Assembly held on 8 October 2020 and at the joint meeting of the Bureaux of the United Nations Environment Assembly and the Committee of Permanent Representatives held on 1 December 2020, the fifth session of the Assembly is expected to adjourn on 23 February 2021 and resume as an in-person meeting in February 2022.
** UNEP/EA.5/Rev.1.

I. Progress in the implementation of resolution 4/23

A. Continued provision of information from existing and ongoing assessments to guide future policy debates

3.   UNEP has continued to regularly provide information from existing and ongoing scientific assessments to guide future policy debates at the United Nations Environment Assembly.[1]

B. Promotion of environmental monitoring and assessment and the primacy of a strong science-policy interface therein

4.   UNEP is supporting an increasing number of countries in Africa in the development of shared national environmental data and information management systems and platforms for reflecting the provisions of the Convention on Biological Diversity, the United Nations Convention to Combat Desertification, the United Nations Framework Convention on Climate Change and other multilateral environmental agreements, as well as the Sustainable Development Goals, in data management, monitoring and reporting. These efforts will involve the development and publication of national environmental indicator frameworks, in synergy with reporting on the implementation of the Sustainable Development Goals, and interministerial and inter-agency agreements and memorandums of understanding on data sharing protocols and policies and other coordination mechanisms for sustainable development. Regarding the Asia and the Pacific region, UNEP produced the regional report on lessons learned on sharing and using data to support reporting and assessment processes in Asia and the Pacific. The report contains information on UNEP support provided to countries in the region for the development of shared national environmental data and information management systems and platforms.

5.   The work of UNEP in the areas of the continued provision of scientific assessments to underpin policy debates, the promotion of environmental monitoring and assessment and the primacy of a strong science-policy interface is complemented by the work being undertaken under resolutions 1/9 on the Global Environment Monitoring System/Water Programme (GEMS/Water) and 3/10 on addressing water pollution to protect and restore water-related ecosystems, in which the Environment Assembly made similar requests to UNEP with regard to monitoring and assessment in the specific context of water, water quality and emerging issues. To address those requests, two mechanisms have been put into place: GEMS/Water and the World Water Quality Alliance. The central aims of the Alliance are to foster the promotion of environmental monitoring relating to water, provide for a global water quality assessment and establish a multidisciplinary community of practice that can respond to emerging issues across the water-related Sustainable Development Goals, as well as several others, thereby supporting a strong science-policy interface. Detailed reports on the individual workstreams of the Alliance and the status of their implementation, including those with a focus on water quality and health and activities in response to the coronavirus disease (COVID-19) pandemic, are provided in the report of the Executive Director on progress in the implementation of resolution 3/10 (UNEP/EA.5/20).

C. Developing and prioritizing a long-term data strategy within the programme of work and budget

6.   UNEP initiated a participatory process for the development of a new environmental data strategy in 2019, which is ongoing, through which the following is envisaged: (a) the setting up of a dedicated internal task team, including representatives of the secretariats UNEP-administered multilateral environmental agreements; and (b) the establishment of a global, external consultative network of partners, including the Global Resource Information Database (GRID) centres, international organizations, businesses and citizen science associations. A first draft of a conceptual framework for the development of the global environmental data strategy is under discussion within UNEP.[2]

7.   In cooperation with United Nations regional commissions and the Statistics Division of the Secretariat, UNEP provides training to countries on the collection of data on Sustainable Development Goal indicators and the Framework for the Development of Environment Statistics as part of the tenth tranche of the Development Account programme on statistics and data, as well as other initiatives.

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[1] UNEP scientific publications are available at www.unep.org/resources?vkk=zr1i8o297u7k328no9w2x&f%5B0%5D=category%3A452.

[2] See also UNEP/EA.4/HLS.1.

UNEP is the custodian for 25 Sustainable Development Goal indicators across Goals 6, 8, 12, 14, 15 and 17. The indicators cover topics related to resource management and the protection of water, marine and terrestrial ecosystems, the circular economy, including the sustainable management and efficient use of natural resources, and the environmentally sound management of chemicals and waste. UNEP works with Member States to develop methodologies for implementing the Goals, works with national statistical authorities to collect data on the Goals and promotes the use of data for analysis, including in the context of the global progress report on the Goals. The mandate of custodian agencies, namely, international and supranational statistical agencies, with regard to accountability for the quality and accuracy of global reporting on progress towards the Sustainable Development Goals is elaborated in the report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (E/CN.3/2019/2, annex I). Building on its expertise, UNEP has developed methodologies for those 25 indicators. They have been endorsed through the formal process with Member States as the official monitoring methodologies. UNEP has also ensured that all methods developed are aligned with existing statistical standards and frameworks, including the Framework for the Development of Environment Statistics and the System of Environmental-Economic Accounting. UNEP has also worked to ensure that gender is properly considered in all environment-related Sustainable Development Goal indicators. UNEP has partnered with the Group on Earth Observations initiative GEO Blue Planet and Esri to provide global datasets on coastal eutrophication, providing valuable understanding of ocean health and biodiversity that can be disaggregated to inform policy at the national, regional or local level, as part of its monitoring of Sustainable Development Goal indicator 14.1.1. UNEP also partners with members of the global citizen science community, which is working towards bringing citizen science into the implementation of the Goals, which is was new initiative undertaken during the reporting period. Now that methodologies are in place, UNEP will scale up its actions to improve national monitoring of the implementation of the Goals and use of data for related regional and global analysis and policymaking. UNEP has a partnership with the regional commissions and the Statistics Division, which has provided capacity-building to more than 25 countries as part of the tenth tranche of the Development Account programme on statistics and data and other initiatives.

D. Identification of comparable methods for data collection and analysis

8. UNEP continues to develop the World Environment Situation Room using the latest standards for data exchange, such as Open GIS Consortium standards for geospatial data and application programming interface for statistics, geospatial data and publications. UNEP chairs the United Nations Geospatial Network, comprising about 30 United Nations entities, with the aim of standardizing and harmonizing data sharing. UNEP also continues to promote the adoption of comparable methods for data collection and analysis through GEMS/Water. In collaboration with the European Environment Agency and Member States, and in consultation with the Directorate-General for Environment of the European Commission, UNEP is supporting a regional pilot programme to foster the alignment of reporting on the state of and trends with regard to global water resources, and to enable the use of European Environment Agency data for monitoring water quality indicators under Sustainable Development Goal 6. The common objective is to mainstream water quality issues and solutions in an end-to-end value chain, from data to larger-scale action, as a collective effort of all actors. It may serve as a model for future collaboration with other regional and global partners, including the collaboration currently being explored with the African Ministers' Council on Water.

E. Improvement of platforms that provide a repository function to allow open access to up-to-date, quality-assured, credible and relevant data

9. UNEP continues to improve the interoperability of the multiple data platforms that it manages and to work with partner multilateral environmental agreements, such as the United Nations Information Portal on Multilateral Environmental Agreements (www.informea.org), to gradually integrate them and facilitate open access through a single entry point. The single entry point is already accessible through the homepage of the UNEP website (https://unep.org), in the Science and Data section as well as under Resources in the World Environment Situation Room subsection. This new way of integrating data, information and knowledge includes a repository function for all UNEP data and publications. It allows for open access to a wide range of up-to-date, in some cases in near-real time, global environmental datasets. The quality of data and content is assured by the UNEP experts who are involved in selecting and posting all content. The platform includes geospatial data, statistics, indicators and data analysis on the environment. It is developed and maintained in close collaboration with the GRID centres, with GRID-Geneva leading the coordination. UNEP is also developing new World Environment Situation Room functionalities and dedicated dashboards to support United Nations country teams and Member States by providing common country analyses; assessments,

including on implementation of the Sustainable Development Goals; and thematic platforms on topics such as climate change, pollution, mountains and environmental risk management, in collaboration with several UNEP GRID centres, including GRID-Arendal for ocean data, GRID-Warsaw for the digitalization of data from the sixth *Global Environment Outlook* and GRID-Sioux-Falls for change detection, and with other such centres, including the World Conservation Monitoring Centre on biodiversity and protected areas.[3]

F. Efforts to assist Member States in developing their national environmental data management capacities and monitoring systems

10. To assist Member States in developing their national environmental data management capacities and monitoring systems and in related actions, UNEP is working on multiple fronts:

11. *Air quality.* UNEP is assisting an increasing number of Member States in developing their capacity for national environmental data management. For example, the Global Environment Monitoring System for Air (GEMS/Air) programme released the world's largest platform for monitoring air quality data ($PM_{2.5}$) worldwide and also computes human exposure to fine particles (associated with health burdens) in real time. .[4] The programme was developed in collaboration with partners and is complemented by a new mobile application. UNEP is developing an international platform to support air quality management for developing countries that will be hosted within the United Nations cloud infrastructure, with its release planned for the fourth quarter of 2020; it will be piloted in 2021 for five countries in Africa with a view of scaling thereafter. A new GEMS/Air strategy has been developed that aligns with the overall Global Environment Monitoring System programme; it leverages partnerships, with an emphasis on scaling and investment, in an effort to lower costs and develop an open and efficient air quality monitoring network, in particular for developing countries. To that end, UNEP has renewed its collaboration with the World Meteorological Organization and several partnerships with private-sector entities and non-governmental organizations that already contribute to implementation at various scales and in various air quality sectors. In addition, a mobile application to support countries was developed to show air quality status in a pilot city (Addis Ababa).[5]

12. *Water quality.* The GEMS/Water initiative works with 116 national focal points for providing access to in situ water quality data through the Global Freshwater Quality Database (GEMStat).[6] The data are available for the period 1965–2019 and for about 300 parameters. The World Water Quality Alliance, which conducts the World Water Quality Assessment, recognizes the scarcity of on-the-ground data on water quality in many parts of the world and is working on a combined modelling, satellite observation and ground data-based approach to produce a global baseline of freshwater quality, which also includes testing a multi-agency approach to addressing bottom-up stakeholder demand-driven joint design of water quality products in three locations in Africa (Cape Town, Lake Victoria and the Volta Basin). Of key assistance to Member States in national monitoring and data management is the GEMS/Water capacity development programme component, in particular its various online training courses.[7] It is entering a final three-year funding period (2021–2023) supported by the Government of Ireland, after which a different financing model would need to be established to continue support to Member States. In the next phase, capacity development will therefore be based on a consortium approach in order to cover a wide spectrum of demand and broaden the support base. This is part of the World Water Quality Alliance-GEMS/Water joint programme from 2020, a central component of which is online diploma and technical training programmes for multiple applications and formats.

13. *Deforestation and forest degradation.* Multiple data sets on deforestation are now available through the World Environment Situation Room geospatial dashboard on biodiversity, which also links to the statistics dashboards for the data compiled in the *Global Forest Resources Assessment 2020* of the Food and Agriculture Organization of the United Nations. The Situation Room now also features a tool for monitoring forest fires in near-real time.

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[3] More information is available at https://unep.org and at https://wesr.unep.org.

[4] See https://wesr.unep.org/airvisual.

[5] See https://unepgrid.ch/playground/wesr-african-cities.

[6] See https://gemstat.org.

[7] See www.ucc.ie/en/gemscdc/onlinecourses.

14.   *Marine litter.* Data on marine litter are now included in the World Environment Situation Room dashboard on pollution, and GRID-Arendal is developing a new dashboard on oceans data in the context of the United Nations Decade of Ocean Science for Sustainable Development, 2021–2030.

15.   *Environment and security.* The World Environment Situation Room team is developing additional tools for data integration regarding the environment and security.[8]

G.   Coordination of efforts with the Group on Earth Observations to fully utilize Earth observations

16.   The World Environment Situation Room team has been collaborating closely with the Group on Earth Observations, especially regarding the possibility of including in situ data and satellite imagery applications, such as the European Union Earth observation programme Copernicus. The World Water Quality Alliance also fosters collaboration with the National Aeronautics and Space Administration of the United States of America, and GEMS/Water provides a critical mechanism for ground-truthing satellite observations.

H.   Encouragement of citizen science and its potential contribution as a complementary resource to fill data gaps

17.   The World Water Quality Alliance includes access to and support for new citizen science data and programmes, including the AfriAlliance coordinated by IHE Delft Institute for Water Education and the Multiscale Observation Networks for Optical Monitoring of Coastal Waters, Lakes and Estuaries (MONOCLE) project, supported by the European Union's Horizon 2020 programme. The embedding of such information into regular water assessment and monitoring is still in progress. Progress in the alignment of technically rigorous and inexpensive sensor-based measuring of air quality is ongoing.

I.   Country analyses with robust environmental data and statistics, in line with Sustainable Development Goal indicators

18.   UNEP initiated collaboration with 15 pilot countries[9] in 2020 – with plans to add 20 more[10] in 2021 – to develop tailored World Environment Situation Room dashboards in support of United Nations country teams. A dedicated data platform allows country teams to access data for monitoring the implementation of the Sustainable Development Goals using the Goal scorecard. Another dedicated platform enables comparisons between countries and access to all environmental statistics, such as those relating to the Sustainable Development Goals and multilateral environmental agreements.[11]

J.   Preparation of an options document on the future of the *Global Environment Outlook* process

19.   A steering committee composed of representatives of 36 Member States was established to oversee the broad consultation process with Member States, UNEP accredited stakeholders and selected assessment experts on the key building blocks of the future of the *Global Environment Outlook* process. The bureau of the steering committee has developed a discussion paper on the basis of a detailed analytical background paper produced by independent consultants. The consultation process was conducted online through a questionnaire, in all official languages of the United Nations, to collect input from all participants. In addition, seven information-sharing webinars were held by the bureau of the steering committee, with the assistance of the secretariat, to further share information on the *Global Environment Outlook* process and the options paper drafting process and to allow

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[8] See the story map on environmental security and sustaining peace, available at https://app.staging.mapx.org/?project=MX-0W6-68D-ULE-4W1-GN2&views=MX-QJLDP-37Z30-KPV4U&viewsOpen=MX-QJLDP-37Z30-KPV4U&language=en&. See also an example with the selected case study of Afghanistan and Columbia. Available at https://app.staging.mapx.org/?project=MX-0W6-68D-ULE-4W1-GN2&language=en.

[9] Argentina, Côte d'Ivoire, Egypt, Ethiopia, Jordan, Kenya, Lao People's Democratic Republic, Mali, Mongolia, Senegal, Somalia, South Africa, Togo, United Republic of Tanzania, Viet Nam.

[10] Including, among others, Antigua and Barbuda, Grenada, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

[11] See https://wesr.unep.org/gegstracker.

participants to make informed contributions during the consultation period. The steering committee held 14 online meetings to plan and advise on the progress of the process. Its final workshop, held on 2 November 2020, enabled the steering committee to develop an options paper on the future of the *Global Environment Outlook* process, as requested in paragraph 6 of resolution 4/23, taking into consideration the responses received during the consultation process. The paper will be submitted for consideration by the Environment Assembly at its fifth session.[12]

K. Proposal for science-policy input on the global environment

20.   UNEP is developing a new report synthesizing and analysing the key messages from science that are emerging from all major global environmental assessments published in recent years. The report is being developed with contributions from more than 40 prominent authors and advisors, with Ivar Baste serving as lead author and Robert Watson as lead advisor. It will be launched prior to the fifth session of the Environment Assembly. The report, the sixth *Global Environment Outlook* and the scientific assessments being prepared also provide the scientific basis and underlying rationale for the opening sections of the UNEP medium-term strategy for the period 2022–2025 (UNEP/EA.5/3).[13] In addition, preparations are under way for a review of 50 years of action at the science-policy interface level and an outlook for the future, with completion anticipated in mid-2022, in time for the fiftieth anniversary commemoration events. The development of the publication will be led by the UNEP Science and Law divisions in close collaboration with the secretariats of multilateral environmental agreements and in consultation with Member States and stakeholders. UNEP has initially invited the Stockholm Environment Institute and the University of Nairobi to help jointly develop the publication in collaboration with other global partners. The approach follows the guidance received from the joint session of the Bureaux of the Assembly and the Committee of Permanent Representatives held in June 2020.

L. Development of the data strategy of the United Nations Environment Programme

21.   UNEP continues to assist Member States in developing their national environmental data management systems for air quality. However, scaling up beyond a few pilot countries has been challenging because of a lack of funding. Within those constraints, UNEP has remodelled its approach to supporting countries. In partnership with the private sector, the GEMS/Air programme released the world's largest real-time data platform for air quality, complemented by a new mobile application, in collaboration with partners for monitoring air quality worldwide, in particular with regard to fine particles with a rating of particulate matter 2.5. More recently, the platform has expanded to calculate real-time population exposure to air pollution through a related collaboration.[14] Similarly, in collaboration with the Environmental Protection Agency of the United States, UNEP is developing an international platform to support air quality management for developing countries that will be hosted under the United Nations data management infrastructure. The platform's launch is planned for the fourth quarter of 2020, and it will be piloted in five African countries. A new GEMS/Air strategy has been developed that aligns with the overall Global Environment Monitoring System programme; it leverages partnerships, with an emphasis on scaling and investment, in an effort to transform air quality monitoring, in particular for developing countries. A key pillar of the new approach is to play a coordinating role across the international landscape of interventions. To that end, UNEP has renewed its collaboration with the World Meteorological Organization and non-state actors, such as the C40 Cities alliance, in addition to several private-sector partnerships that already contribute to implementation at various scales and in various air quality sectors.

M. Strengthening the policy relevance of the *Global Environment Outlook* process by measuring progress towards the achievement of internationally agreed environmental goals, to inform relevant global processes and meetings

22.   UNEP also plays a key role in promoting environmental analysis in the areas covered by the Sustainable Development Goals, including through publications such as *Measuring Progress*, which fosters understanding of how to achieve the environmental dimension of development. In March 2019,

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[12] More information on the process is available at www.unenvironment.org/global-environment-outlook/future-geo/nomination-process-steering-committee-future-geo.

[13] More information on the strategy is available at https://wedocs.unep.org/handle/20.500.11822/7621.

[14] See https://wesr.unep.org/airvisual.

UNEP published the report *Measuring Progress towards Achieving the Environmental Dimension of the SDGs*,[15] which contains a summary of global and regional progress towards achieving global environmental targets, using the global Sustainable Development Goal indicator framework as a basis. In addition, the report captures linkages with socioeconomic development, which are useful for better contextualizing the environment and for understanding the nexus between environment, people and economy. Of 93 environment-related Sustainable Development Goal indicators, there are 20 (22 per cent) for which good progress has been made in the past 15 years. If that rate of progress continues, it is likely that those indicators will be met. For 78 per cent of the environment-related indicators, there are either insufficient data to assess progress or it is unlikely that the target will be met without scaling up action. The publication identifies knowledge and information gaps in terms of assessing progress towards realizing the environmental dimension of the Goals. The information available as at March 2019 enabled the assessment of global progress for less than 40 per cent of the environment-related indicators. A major constraint in terms of monitoring the environmental dimension of development is the lack of national capacity with regard to environment statistics. The second edition of *Measuring Progress* will focus on the relationship between the Sustainable Development Goals and nature.

N. Promotion of greater coherence and coordination of global assessments undertaken within the United Nations system and in cooperation with relevant international bodies and the secretariats of the multilateral environmental agreements

23.   UNEP continues to support the ongoing and informal ad hoc global assessments dialogue[16] that was first convened by the UNEP chief scientist in 2018 and supported by the UNEP *Global Environment Outlook* team in the Science Division. The dialogue is an informal process that brings together the heads of secretariats and the chairs of major global environmental assessments supported by the United Nations and Member States, leveraging input from thousands of scientific authors and stakeholders. The process is deliberately very informal and technical in scope, in recognition of the separate and independent governance systems, mandates and workplans in place for each of the major global assessment processes involved. The dialogue is aimed at increasing synergy, coherence and consistency across the major assessment processes covering most internationally agreed environmental goals, the environmental dimension of the 2030 Agenda for Sustainable Development and related topics and themes, such as land, water, air, oceans, climate change, biodiversity, ecosystem services, resource use and circularity, chemicals and pollution, waste management and sustainable development. To date it has focused primarily on joining communications and outreach efforts and on improving synergy with regard to common methodologies. The dialogue is also an informal mechanism for strengthening the voice of the scientific community and civil society with a view to triggering the science-based policy change and action that would lead to the transformative changes urgently needed to achieve sustainable development. One recent outcome of the dialogue process is the first UNEP synthesis report on the global environment, described in section K above. The dialogue process and the synthesis report are supported by UNEP core resources and staff and by an ad hoc grant provided by the European Union in 2020. The mandate to promote greater coherence and coordination is implemented by UNEP within the scope of existing human and financial resources and through additional ad hoc contributions from Bahrain, China, Czechia, Germany, Ireland, Norway, Switzerland and the European Union.

II.   Recommendations and suggested actions

24.   The Environment Assembly may wish to take note of the present report and provide further guidance, as appropriate.

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[15] See www.unenvironment.org/resources/report/measuring-progress-towards-achieving-environmental-dimension-sdgs.

[16] For more information, see www.unep.org/global-environment-outlook/adhoc-global-assessments-dialogue.