Establishing an Environmental Data and Information framework to strengthen the science-policy interface of Latin America and the Caribbean

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Introduction

1.   Enhanced access to affordable technology for large-areas data analysis and high-resolution data collection, along with innovative models for collaborative and distributed scientific research networks, have significantly increased the capacity of production and publication of data and information about the state and trends of the environment. This "exponential increase in the volume and types of data available, creating unprecedented possibilities for informing and transforming society and protecting the environment."[1] opening the doors to new possibilities and ways of producing, processing and consume environmental data and information.

2.   The potential users of this wealth of information pertain to many different groups of stakeholders active both in the private and public sectors. The flexible integration of data systems, both in terms of infrastructure and networking can support fit-for-purpose monitoring, early warning, assessments and reporting, decision-support, community awareness and empowerment, grounded in evidence-based management principles.

3.   Open, timely, and relevant data is critical to informed decision making, monitoring of policy response, and evaluation of results—especially in the context of the Agenda 2030 and related Sustainable Development Goals and other global and regional agreements.

4.   UNEP is committed to support member countries in their effort to produce, collect, manage and publish data and information on the state of the environment as a necessary step towards the consolidation of a regional informed environmental concern and to support the political action needed to deviate the current development pathways and related drivers of change.

5.   The intense activity around the production, systematization and diffusion of knowledge and information is a central aspect of the science-policy interface.

6.   This critical role of science-policy interface and the need to strengthen and promote the use of national and regional indicator frameworks and to intensify the development of environmental integrated assessments has being mandated by UNEA through its Resolution 2/5, and by the Forum of Ministers of Environment of Latin America and the Caribbean (through Decisions 1 (ILAC) and 2 from the XX Meeting).

7.   These mandates are implemented by the Regional Office under the assumption that the transition of Latin America and the Caribbean (LAC) towards sustainable development requires the embracement of a new paradigm that places access to high quality, disaggregated and open environmental and socio-economic data at the forefront of the regional undertakings.

8.   A key point in this transition is the recognition that, although the existing socio-economic differences among countries within the region, Latin America and the Caribbean has demonstrated to have the scientific and technological background needed to support major environmental progress through effective data and monitoring systems.

9.   Along these lines, the main objective of this proposal is the development of a robust and functional data and information framework for Latin America and the Caribbean to

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1 A World that Counts. Mobilising the Data Revolution for Sustainable Development, Independent Expert Advisory Group Secretariat 2014. www.undatarevolution.org

support monitoring the delivery of the environmental dimension of the 2030 Agenda and other relevant national and regional initiatives and programmes.

10. The proposed Data and Information framework will strengthen the Forum of Ministers of Environment of Latin America and the Caribbean, notably in their capacity to influence the sustainable development agenda of the region, by publishing a biennial State of the Environment Report for Latin America and the Caribbean, whose source of data, statistics and information (including ILAC and SDGs indicators) will be published through an open Data and Knowledge Platform.

11. The report will allow in a synthetic and easy to access way, to track regional progress and assess environmental performance towards the implementation of the 2030 Agenda for Sustainable Development, ILAC, Samoa Pathway, Sendai, the Paris Agreement and other relevant Multilateral Environmental Agreements MEAs and agendas.

12. The contents of the report will feature regionally relevant data, SDG indicators, ILAC indicators, environmental performance indicators, environmental statistics, meta-analysis from relevant scientific publications as well as a selection of success stories from the region.

13. The reports and the material published in the platform will be designed as a transmedia product, primarily focused on digital content but with the possibility of being presented in other formats in conferences, policy fora, open/street exhibitions, webinars, TV interviews and radio programmes, among others.

14. The reports therefore aim at providing a common language for talking about the environment in the region; although they are primarily intended for governments, political fora and regional leaders (including from the private sector) as a science-policy tool, the objective with these reports is to reach out as many people as possible, helping to 1) raise collective and individual awareness about the environment in relation to the development pathways and lifestyles in the region, 2) facilitate participation in the governance of the environment, 3) promote environmental literacy and knowledge democracy, and 4) use knowledge to motivate and empower people in the changes required to reorient LAC societies towards a more sustainable model of life.

15. The concept of State of Environment Report for Latin America and the Caribbean relies on the factual contributions of data providers, experts, scientists and representatives of the civil society through their active participation in the UNEP's Regional Environmental Information Network (REIN) of LAC. The implementation and delivery of the reports is fully based on and articulated with the following areas:

a) Data and information collection, validation, publication, and sharing

16. The Report will focus on the most relevant indicators and patterns to describe transitions towards sustainability in Latin America and the Caribbean, of course through the environmental-dimension lens. Therefore, the Report will act as a driving force to streamline and optimize the required data flows, from the collection of the data and monitoring networks to the final presentation of the information products.

17. The contents of the reports will build upon the contributions of data, information and knowledge gathered by the variety of observing networks operated by public institutions, scientific national and regional organizations, and international agencies with a mandate in data collection and processing.

18. Data and information feeding into this area should include both Earth observations sensed by in-situ and remote observing systems, and socio-economic data series derived

from census, monitoring, surveys, and studies conducted at local, national or regional level.

19. In accordance with Principle 10 of Rio Declaration on Environment and Development, data, metadata and products will be shared and made publicly available as open data with minimum time delay and in full compliance with the GEOSS (Global Earth Observations System of Systems) data sharing principle. This area will also serve as repository of up-to-date and robust data and information to feed into the DPSIR causal framework for the development of periodic Global Environment Outlooks (GEOs) for the region.

b) Modelling patterns and trends of the environment

20. Information provided through indicators and related trends is not able to capture medium to long effects of existent pressures and impacts on the environment and the society. Additionally, emerging issues and new drivers of environmental change are not totally captured by data and indicators. This area will leverage the knowledge, data infrastructures, and computation capability existent in the region and worldwide to establish a regional e-infrastructure to produce consistent outlooks and scenarios of future changes in key ecosystems variables and environmental indicators under climate change and other global change stressors.

21. These outlooks and scenarios would be able to represent a range of alternative and equally consistent future conditions of the environment in LAC that account for drivers of change such as land-use change, demography, globalisation and changes in markets and investments, and pressures that originate from key economic sectors for LAC as agriculture, extractives and tourism.

b) Communicate the state of the environment and its trends
22. Contents of the report will be presented in a non-expert language, to be accessible to as many people as possible; as a mass communication product, the reports will be designed with the media in mind, so they can be widely used, shared and broadcasted through several categories or types of media content that can be consumed by different audiences

23. From the open science perspective, the wealth of data and information produced through the areas described above will be publicly available through a Regional Data and Knowledge Platform to inform the civil society, policy makers, media and the general public about the state of the environment in the Region.

24. The Data Platform, including SDGs and ILAC indicators, will be accessible both through the regional section of UNEP's Environment Live and through the being developed regional SDGs Gateway of the Forum of Countries of LAC for Sustainable Development.

25. The information would be available at different spatial scale and over different timeframes and will include both products tailored for targeted audiences and based on a strong use of graphic elements and multimedia and, also reports and assessments produced for specific stakeholders and based on specific disaggregation and analysis of the available data. Main functionalities of the Data Platform shall include:

> a) Collection, validation and publication of national, sub-regional and regional data, statistics and (SDGs and ILAC) indicators produced by UNEP, other International organizations, national institutions and relevant scientific organizations;

b) Support the analytical capacity of the Forum of Minsters of Environment to respond to regional and countries' needs by systematically gathering and analyzing data and producing technical reports, including data and capacity gaps and open challenges;

c) Liaise and interact with relevant initiatives, programmes, such as the UN Environment Global Environment Monitoring System for freshwater (GEMS/Water), the Group on Earth Observations (GEO) and its regional initiative AmeriGEOSS, to ensure smooth coordination for timely production of data and indicators and to support participation of LAC countries in key deliverables and projects (e.g., thematic assessments, World Water Quality Assessment, Global Environment Outlooks).

d) Modelling the pressures and impacts of environmental change on water, land and air, through the development of outlooks under a range of possible future socio-economic scenarios;

26. Additionally, the platform would serve as UNEP's Communication Hub for LAC, where products (e.g., infographics) tailored for targeted audiences and based on a strong use of graphic elements and multimedia available for download.

27. In general, the implementation of this Data and Information Framework will have impacts on the following areas:

28. *Availability of environmental data, indicators and statistics*: the establishment of a Data and Knowledge Platform of the Forum and the systematic production of the Reports will catalyse a new dynamics around the production, validation, maintenance, integration and use of environmental information across the region, from environmental monitoring systems to open data policies.

29. *Understanding environmental change*: over the years the amount and quality of available information will increase and improve in a more coherent way, filling existent observation gaps and addressing computational challenges and, in turn, improving significantly the capacity in the region to track and understand patterns and trends of the environment. The establishment of specific thematic Working Groups focusing on key environmental emerging issues would also be considered in the development of the framework.

30. *Capacity building*: the participation in this initiative of relevant scientific and technical organizations will provide the opportunity to develop capacity enhancement activities related to environmental information, mostly based on South-South cooperation.

31. *Partnerships*: This framework, given its nature, will imply the establishment and consolidation of a range of strategic partnerships, expanding both the operational and political relevance and incidence of the Forum in the region.

32. *Open science*: the systematic production of the Reports will serve as an effective tool for the scientific community to contribute, engage and participate in the science-policy dialogues in the region.

33. *Delivering as One*: the activities conducted in the data and information framework will bring together all the areas of work of UNEP. As such, these reports will be produced in close coordination with all the sub-programmes and initiatives at the regional office.

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