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Item **XXXX** of the provisional agenda\*

**Strengthening the Science Policy Interface**

**Report of the Executive Director**

**Summary**

The present report summarizes the key actions that the United Nations Environment Programme (UNEP) is undertaking to strengthen the science-policy interface to better address the changing nature and implications of human-environment interactions, global megatrends and policies on sustainable development and human well-being.

The actions include the expansion of partnerships with centres of excellence and international research programmes to underpin the science in the United Nations Environment Programme (UNEP) programme of work; the evaluation, benchmarking and implementation of concepts, approaches and good practice to produce integrated assessments; fostering further collaboration with UN entities and MEAs, member states, business and communities of practice to strengthen the science-policy interface; the establishment of inclusive, networked and contextualised knowledge, including up-to-date quality assured data, from a diverse range of authenticated sources; and implementation of an organisation-wide knowledge management system to enable wide use of shared knowledge assets.

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## **I. SUGGESTED ACTION BY THE UNITED NATIONS ENVIRONMENT ASSEMBLY OF THE UNITED NATIONS ENVIRONMENT PROGRAMM**

1. The Assembly may wish to consider the adoption of a resolution along the lines suggested below:

### The United Nations Environment Assembly of UNEP,

Recalling GA Resolution 66/288 of July 2012 on the Rio+20 Outcome Document – The Future we want – specifically its Paragraph 88: *We are committed to strengthening the role of the United Nations Environment Programme as the leading global environmental authority that sets the global environmental agenda, that promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and that serves as an authoritative advocate for the global environment. We reaffirm resolution 2997 (XXVII) of 15 December 1972 which established UNEP and other relevant resolutions that reinforce its mandate, as well as the 1997 Nairobi and 2000 Malmö Ministerial Declarations. In this regard, we invite the United Nations General Assembly, in its 67th Session, to adopt a Resolution strengthening and upgrading UNEP in the following manner:*

*(d) Promote a strong science policy interface, building on existing international instruments, assessments, panels and information networks, including the Global Environment Outlook, as one of the processes aimed at bringing together information and assessment to support informed decision-making;*

*Recalling also Decision 27/2/8: The Governing Council decides ‘that the governing body of the United Nations Environment Programme will promote a strong science-policy interface, by reviewing the state of the environment, by building on existing international instruments, assessments, panels and information networks, including through an enhanced summary for policy makers of the Global Environment outlook and , in this regard, requests the Executive Director to identify critical gaps and present a report, with recommendations, to the governing body;’*

*Requests the Executive Director to promote a strong science-policy interface in the United Nations Environment Programme (UNEP) by expanding partnerships with centres of excellence and international research programmes; promoting international benchmarking of integrated assessment and policy analysis; working closely with member states, business and communities of practice to establish up-to-date quality assured data flows and more inclusive, networked and contextualized knowledge for science-policy analysis; implementing an organisation-wide knowledge management system to share knowledge assets; and disseminating evidence-based environmental information to raise public awareness on critical as well as emerging environmental issues;*

*Further requests the Executive Director to work closely with relevant UN bodies, including UN DESA on the production of the Global Sustainable Development Report;*

*Also requests the Executive Director to foster collaboration with the MEAs to strengthen the science-policy interface.*

## II. BACKGROUND

### A. The science-policy interface as a core element in UNEP's programme of work

2. UNEP is “*the leading global environmental authority that sets the global environmental agenda, that promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and that serves as an authoritative advocate for the global environment.*” By building on existing international instruments, assessments, expert panels and information networks, UNEP has accumulated a wealth of knowledge that has enabled it to provide support to decision-makers in caring for the environment.

3. UNEP has been successful in establishing, hosting, catalysing and supporting many different institutions, bodies and initiatives to address a wide range of environmental challenges for sustainable development and to bridge the science and policy and business communities. The Montreal Protocol and setting up of the Ozone Secretariat, Multilateral Environmental Agreements (MEAs), such as the Basel, Rotterdam and Stockholm Conventions, the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the International Resource Panel (IRP) and the establishment of the Climate and Clean Air Coalition (CCAC) are just a few examples. All of these are important sources of information about various processes operating on different scales and UNEP's work in providing services that are relevant to multiple target audiences is well-recognised.

4. UNEP is also able to convene experts, and to provide a rationale and co-ordinating mechanism for them to conduct co-ordinated assessments on specific topics and formats; examples of this approach include the GEO series of assessments, the Emissions Gap Reports, and the Black Carbon and Tropospheric Ozone Assessment.

5. However, science-policy analysis is rapidly changing towards a more dynamic multi-disciplinary and multi-stakeholder process, requiring a more holistic and inclusive approach to gathering information and the co-creation of knowledge. *GEO*, the *Green Economy*, *The Economics of Ecosystems' Biodiversity* (TEEB) and International Resource Panel reports and the establishment of the Climate and Clean Air Coalition refer to the need for a more integrated approach that makes reference to good practices and solutions, uses up-to-date evidence from the business sector and which informs people not only about the risks, both present and unintended, but also the opportunities and choices.

6. In this context, UNEP's current practices can be seen as being insufficiently representative; for example research findings are mainly drawn from the English language literature and with little reference to the business sector or citizen science, compartmentalized, based on a mixture of concepts, approaches with confusing terms or terminologies, reliant on unauthenticated data; and not always driven by actual needs or robust scientific knowledge. Identifying and undertaking remedial actions to address these issues will considerably strengthen the credibility of UNEP's science policy approach.

## III. STRENGTHENING THE SCIENCE POLICY INTERFACE

### A. Developing a more dynamic, inclusive approach

7. Responding to the needs of a rapidly-evolving knowledge-based society requires UNEP to organize, interpret and communicate information differently. Nowhere is this need more evident than in the multidisciplinary and multi-stakeholder enterprise of integrated environmental assessment (IEA) and Life-

Cycle Assessment (LCA), where there are major challenges in applying a systems perspective to address an ever-expanding base of traditionally fragmented information and data. This includes integration across multiple knowledge systems and claims, more complex problems, diverse audiences and varied institutional, spatial, temporal horizons.

8. There is a growing need for new tools, models and frameworks that are better capable of integrating information generated through different paradigms, such as local and traditional knowledge and the social sciences. As demonstrated in recent IEA processes, where the focus has shifted visibly toward solution-oriented analysis and synergistic policies, deliberately inclusive knowledge systems are imperative if UNEP is to provide policy relevant information to support UNEA, the Multilateral Environmental Agreements (MEA) and any potential Sustainable Development Goals.

9. UNEP already has a complex mix of social processes to help build its knowledge base, including expert panels, professional networks, workshops and meetings, especially in the context of its Global Environment Outlook and thematic assessments. However, leading academies of research and political bodies now recognise that traditional ways of channelling and deploying expertise are insufficient to meet today's challenges. UNEP is currently reviewing the methods and processes used for its assessments in line with best practices and the evolving policy orientation of continuously improving the transparency, legitimacy and scientific credibility of its assessments. However, knowledge is taking on the shape of the internet, where there are no longer simple epistemological foundations, rather there are networked facts that exist within a web of links that make them useful and understandable. Thus the methods and approaches that have been proven to be sound and useful in scientific assessment and studies in the past will need to be adapted to incorporate this.

## **B. Technological and social modalities**

10. The strengthening of the science policy interface requires an evolution in UNEP's norms and towards knowledge that is:

*Wide* – which means engaging with a broader range of networks of expertise and communities of practice rather than relying on small sets of experts. Experience in various fields shows that with a large enough population of experts from different perspectives, a new depth to knowledge can emerge, one that is geographically and epistemologically more robust.

*Boundary-free* – meaning that the population can be other-credentialed e.g. citizen-experts or people with practical and experiential knowledge lying outside the traditional disciplinary silos, tapping into the “wisdom of crowds” to avoid leaving talent outside; and

*Unsettled* – this means that knowledge can develop and scientists can make progress together even though they may be in fundamental disagreement. Rapid development of ideas and responses can be gained through iteration of solutions through loose networks.

11. UNEP will need to connect in a more effective way with existing networks and mesh these together with new networks based on communities of practice and a wider array of participants in order to develop a sustained presence across all UNEP's activities. Such networks of excellence and platforms with which UNEP must engage include Future Earth (through its Engagement Committee), GEO (Group of Experts on Earth Observation), IPBES, IPCC and IRP, governments, other UN agencies, MEAs, regional bodies e.g. OECD, ASEAN, communities of practice, academic researchers, indigenous people, civil society, other relevant stakeholders and citizen scientists.

12. New norms and practices of engagement with communities and experts will be established based on regional processes, a wider web presence, support for joint open access publishing and novel tracking to ensure that experts are recognised as having contributed to UNEP's outputs and outreach activities through a more rigorous digital data and information citation process.

13. Adapting UNEP's integrated environmental assessment processes towards more networked and inclusive knowledge generation will be supported by UNEP Live, which will provide working areas for critical reviews, integration and synthesis of knowledge from different language and subject domains using controlled vocabularies and consistent metadata tagging across all types of multimedia.

14. Addressing the gaps and shortcomings in UNEP's current science-policy approach will also require increased investment in the technical and analytical capacities of UNEP staff. Regional offices and national focal points will all be encouraged to participate in the training related to the co-creation of knowledge to support environmental priority setting and policy development, for example through bilateral data and information sharing agreements, regional user conferences as part of the UNEP Live activities and national hotspot analysis as a foundation for discussions to establish national SCP policy packages.

15. The algorithmic and computational technologies that UNEP currently indirectly relies on comprise of data bases, massively parallel computing to manipulate and model data to monitor Earth system processes, and a broad spectrum of analytical tools for policy analyses, indicator development, mapping and assessment. In order to strengthen its own analytical capabilities to make best use of the data and information from countries, regional and global sources, UNEP is implementing an updated ICT governance framework to provide cost-effective solutions, such as cloud services for developments such as UNEP Live, the system wide knowledge management platform, that provides the tools needed to work with big data derived from global networked observations, multimedia and sensor web enabled monitoring networks, citizen science programmes, mesh networking of expertise and e-publishing.

16. Part of strengthening UNEP's science policy work has to do with the ability to improve the measures it uses to track the outcomes and impacts of its work. Effective evaluation, using indicators and quantitative measures, allows for constant feedback and a better understanding of how science is being used in policy making and how policy is actually affecting the environment. UNEP will also monitor the impact of its science policy work by measuring the political and societal response to environmental issues through, for example institutional changes, investment changes, responses to national and regional environmental changes in the context of gender; gauging the outcomes of adaptation in an ecosystem management context.

#### **IV. EMERGING ISSUES, FORWARD LOOKING ANALYSES, TRANSFORMATION PATHWAYS AND PRIORITY SETTING**

##### **A. The key environmental challenges impacting human well-being**

17. A comprehensive list of environmental challenges impacting on human well-being was recently compiled by scientists and experts both external and within UNEP, building on those issues identified by UNEP in 2012 and which were at the centre of the Rio+20 Outcome. The challenges include irreversible changes in the Earth system, an exponential increase in greenhouse gases; various impacts of climate change; air pollution and its health and ecological impacts; disruption in nutrients cycles; degradation of terrestrial systems; loss of biodiversity and disruption of ecosystems; a lack of recognition of the value of nature; inadequate access to freshwater; unsustainable, unsafe and hazardous industrial practices; release of harmful and hazardous wastes into the environment; rapid urbanization; unsustainable consumption of non-renewable energy and material resources; food loss; environmental crime and illicit activities; overexploitation of

resources, unequal access and rights to natural capital; human migration; insufficient resource management due to lack of capacity; and degradation of the environment and global commons resulting from a range of macro-economic policies.

18. The nature of emerging issues means that UNEP will also need to pay special attention to avoid falling into the trap of only focussing on those areas which are well studied and consider evidence gathered on poorly known problems, especially potential hazards, their magnitude and uncertainties about which new information would be needed. The identification of which emerging issues to focus on should also consider societal needs for information about potential opportunities and solutions as well as risks, and the need for it to be complementary and extend current knowledge.

19. Keeping track of internationally agreed and global environmental goals (GEGs) is key to informing policy reform, governance and strategic processes such as the post 2015 Agenda and the development of Sustainable Development Goals. Similarly, setting priorities in relation to emerging and known challenges at national, regional and global levels is a fundamental element of the science-policy interface and the work of the Regional Offices as well as headquarters. UNEP must therefore continue to strengthen its work in these areas by ensuring that it has strong partnerships with the MEAs and other key bodies to develop the evidence base for policy makers to establish priorities and should support capacity building in different regions to undertake Forward Looking studies, Horizon Scanning and Foresight.

20. UNEP's new programme of work will address a number of these challenges by working in partnership with communities in different regions and countries, through the strengthened Regional Offices and the Deliver as One UN programme, to develop the evidence base needed to inform the policy world about global megatrends and transformative pathways for innovation and the transition towards a green economy at the national and regional level to enhance human well-being and reduce inequality.

## **V. CONCLUSIONS**

21. To bridge the gaps in the science-policy interface and strengthen its work in the area of assessment and policy analysis, UNEP is undertaking a series of actions comprised of:

- (a) identifying and following internationally recognised best practice in analysis, assessment methods, scenario and futures development and policy analysis, ensuring that the procedures are transparent, inclusive, scientifically credible, user oriented and policy relevant;
- (b) developing a normative leadership position within the UN system as a global environmental data and analytics centre that can facilitate the sharing and exchange of up-to-date open access quality assured environmental data and information with countries, and regional and global sources;
- (c) building and sustaining expanded networks of expertise with centres of excellence, member states, regional bodies, relevant UN entities, MEAs, international research programmes and business to co-create contextualised knowledge for improved environmental assessment and policy analysis; and
- (d) implementing an organisation-wide knowledge management platform to make better use of the knowledge assets of UNEP and its partners and to support capacity building in the use of analytical tools for the co-creation of knowledge and dissemination to key audiences.