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**Governing Council
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Global Ministerial Environment Forum**
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Item 4 of the provisional agenda*
Emerging policy issues: environment and development

World environmental situation

Report of the Executive Director

Summary

      The present report provides an overview of the fifth Global Environment Outlook report, processes and outcomes. In addition, pursuant to section IV of Governing Council decision 26/2, it provides information on the pilot proof-of-concept phase of the UNEP-Live platform and an interim report on the status of the platform.

I. Suggested action by the Governing Council

1.   The Council/Forum may wish to adopt a decision along the lines suggested below:

SS.XII/[ ]: World environmental situation

The Governing Council,

Pursuing its functions and responsibilities as outlined in General Assembly resolution 2997 (XXVII) of 15 December 1972 and subsequent mandates such as those set out in the Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme[1] and the Malmö Ministerial Declaration,[2] which include the responsibility to keep the world environmental situation under review to ensure that emerging environmental problems of wide international significance are prioritized and receive appropriate and adequate consideration by Governments and to promote the contribution of relevant international scientific and other professional communities to the acquisition, assessment and exchange of environmental knowledge and information,

Recalling its decisions 22/1 of 7 February 2003, on early warning, assessment and monitoring, 23/6 of 25 February 2005, on keeping the world environmental situation under review, and 24/2 and 25/2, of 9 February 2007 and 20 February 2011, respectively, on the world environmental situation,

Welcoming the progress in the preparation of the fifth report in the Global Environment Outlook assessment series,

Welcoming also the fifth Global Environment Outlook Summary for Policy Makers,[3] which presents the findings of the fifth Global Environment Outlook assessment report,

I

Follow-up to the fifth Global Environment Outlook process

1.   *Stresses* that the transition to sustainable development may require the making of difficult choices as a result of the various concerns and interests in society that must be addressed by well-governed, effectively managed, innovative and results-oriented institutions able to create appropriate conditions for change;

2.   *Also stresses* that the United Nations Environment Programme should promote efforts to make such choices and should lead by example;

3.   *Calls upon* Governments to demonstrate strong leadership individually and collectively, to implement effective policies to monitor, regulate, manage and improve the environment, ecosystems and government services and to continue to cooperate within the framework of multilateral processes that aim to reverse environmental degradation;

4.   *Urges* Governments, United Nations bodies, international organizations, the private sector, civil society and the public at large to work with the United Nations Environment Programme and other environmental authorities at the global, regional, national and local levels to improve the state of the environment so as to foster the conditions required to achieve sustainable development by informing the preparatory process for the United Nations Conference on Sustainable Development using the findings of the fifth Global Environment Outlook assessment report;

5.   *Requests* the Executive Director, through the programme of work, to continue developing and implementing an outreach strategy for disseminating the findings of the fifth Global Environment Outlook assessment report;

6.   *Also requests* the Executive Director, through the programme of work and by working with national and regional environmental authorities, to build capacity and to support technology transfer, within the framework of the Bali Strategic Plan for Technology Support and Capacity-building, to respond to current and future challenges facing humanity:

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1   Governing Council decision 19/1 of 7 February 1997, annex.

2   UNEP/GCSS.VI/9, annex I.

3   The Global Environment Outlook Summary for Policy Makers will be negotiated and endorsed in January 2012 and is reproduced in document UNEP/GCSS.XII/INF/9.

(a)   By partnering with centres of excellence and other stakeholders to develop a coherent and multiscaled programme on the conduct of national assessments of environmental change and its implications for development to provide compelling evidence for informed decision-making;

(b)   By cooperating with other bodies in the United Nations system to develop environmental targets, indicators and data sets and to promote the exchange of best practices in the areas of environmental governance through policy instruments including regulations, market instruments and stakeholder engagement;

II

Response to the findings of *Keeping track of our changing environment: from Rio to Rio +20 (1992–2012)*

7.   *Welcomes* the timely production of the publication *Keeping Track of Our Changing Environment: From Rio to Rio +20 (1992–2012)*,[4] which shows how global economic, social and environmental conditions have changed over the 20 years since the United Nations Conference on Environment and Development in 1992;

8.   *Notes with great concern* the rapid changes that have taken place in the environment, ranging from the impact of climate change, loss of biodiversity and species extinction to the degradation of land and the deterioration of the oceans;

9.   *Urges* Governments, in the lead-up to the United Nations Conference on Sustainable Development, to assess progress and shortfalls in the implementation of their goals, policies and programmes to arrest environmental degradation and to agree on a way forward;

10.   *Recognizes* that there are gaps in our knowledge of the state of the environment resulting from lack of data and regular monitoring, particularly in areas such as freshwater quality and quantity, groundwater depletion, ecosystem services, loss of natural habitat, land degradation and waste;

11.   *Calls upon* Governments and the multilateral system to design and implement programmes to bridge those data gaps, including by building national and regional capacities and establishing regular processes for data-based environmental monitoring and early warning at the national and local levels;

12.   *Requests* the Executive Director, as stipulated in the Bali Strategic Plan, to assist developing countries and countries with economies in transition to build their capacities to collect and analyse data and monitoring environmental trends.

II.   Fifth Global Environment Outlook assessment

2.   In accordance with its mandate to keep the world environmental situation under review, the United Nations Environment Programme (UNEP) has produced four Global Environment Outlook (GEO) assessment reports: in 1997, 1999, 2002 and 2007. The GEO reports provide comprehensive, integrated and scientifically credible global environmental assessments to support decision-making.

3.   By section III of its decision 25/2 of 26 February 2009 the Governing Council requested UNEP to undertake the fifth Global Environment Outlook assessment (GEO-5) and to prepare a report setting out its results. The objectives, scope and process of GEO-5 were agreed upon through a global intergovernmental and multi-stakeholder consultation held in March 2010. The global consultation was followed by regional consultations held from August to October 2010 to advance the process for the preparation of the fifth report at the regional level.

4.   The Governing Council requested UNEP, in undertaking the GEO-5 process, to strengthen the policy relevance of Global Environment Outlook assessments by identifying promising policy options for hastening the achievement of internationally agreed goals such as those agreed at the Millennium Summit of the United Nations in 2000 and in multilateral environmental agreements.

5.   The GEO-5 assessment was carried out by a wide range of experts with support from UNEP. The assessment was also supported by a high-level intergovernmental advisory panel comprising government representatives and a science and policy advisory board made up of reputable science and

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4   An overview of the key findings from this publication, along with selected topics for the *UNEP Year Book 2012,* is presented in the annex to the present note. For the current session the *UNEP Year Book 2012* will be reproduced in document UNEP/GCSS.XII/INF/2.

policy experts. The draft assessment report was subjected to two rounds of extensive expert and government peer review. The final report is currently in the final stages of production and will be launched in May 2012.

6.   The findings of the report, as distilled in the summary for policymakers and *Keeping Track of Our Changing Environment: from Rio to Rio+20 (1992–2012)*, will inform the United Nations Conference on Sustainable Development preparatory process by providing Governments, United Nations bodies, international organizations, the private sector, civil society and the public information necessary to give full consideration to the environmental dimension of sustainable development.

7.   The findings of the report and guidance on the next assessment cycle will be made available at the twenty-seventh session of the Governing Council/Global Ministerial Environment Forum, in 2013.

III.   UNEP-Live

A.   Background

8.   UNEP is mandated by General Assembly resolution 2997, among other things, "to keep under review the state of and trends in the global environment, and provide early warning of emerging environmental problems and threats". In its medium-term strategy for the period 2010–2013, UNEP seeks to comply with this aspect of its mandate within six thematic priority areas, each administered as a subprogramme of the programme of work: climate change, disasters and conflicts, ecosystems management, environmental governance, harmful substances and hazardous wastes, and resource efficiency (sustainable production and consumption).

9.   At its twenty-sixth session, in February 2011, the Governing Council considered a report by the Executive Director that elaborated upon the requirements for a migration to targeted assessments in thematic priority areas and, in particular, the characteristics of a supporting framework to be referred to as "UNEP-Live", as called for in the Council's decision 25/2 of 20 February 2009. The report states:

> If fully realized, the proposed UNEP-Live framework would provide an overarching conceptual framework for understanding and organizing global environmental knowledge activities and capacity-building for assessment and reporting. It would benefit countries by catering for specific country interests and priorities more flexibly, in particular by supporting national efforts to meet assessment and reporting obligations by providing common information content, technology infrastructure, standards, and guidelines. By organizing assessment knowledge and information, it will also support policy makers involved in the debate on international environmental governance by facilitating access to necessary information.

10.   In section IV of its decision 26/2 the Governing Council requested the Executive Director to undertake the development of a prototype of UNEP-Live that would consist of "an interactive web application with supporting data management capacities able to present historic and near real time data and indicators on a limited number of environmental themes". It also requested him "to mobilize partnerships and institutional and technical networks in the non-governmental and private sectors to provide technical assistance for the development of the UNEP-Live platform" and to "work with countries and relevant regional and thematic networks to agree on a set of priority environmental data and indicators to be shared within UNEP-Live".

B.   Prototype implementation

11.   UNEP-Live is currently being implemented in a preliminary prototype proof-of-concept phase, following which it will enter an extended prototyping and requirements definition phase. The prototype and requirements, including costing, will be presented to the Governing Council at its twenty-seventh session, in 2013.

1.   Guiding principles

12.   UNEP-Live will be built through partnership. UNEP will draw from the development of the European Environment Agency's Eye on Earth Network – a partnership between the European Environment Agency, Microsoft and the Environmental Systems Research Institute. The technology underpinning the Eye on Earth Network is designed to deliver the next generation in environmental information access and is expected to offer many advanced features for publishing environmental data and information, including some interesting examples of co-presentation of citizen's own observations

about the environment alongside and in comparison with official monitoring data and statistics. UNEP will assess the potential complementarities and data flow processes to strengthen the ability of UNEP-Live to provide a collaborative environment for hosting and sharing environmental data that promotes the principles of public access to data, along with the principle of "collect once, use many times", which reduces the burden of data provision and enhances the value chain of information fit for purpose.

13.   The development of UNEP-Live will also draw upon the implementation of a World Summit on Sustainable Development Type II partnership initiative launched by UNEP and the Environment Agency of Abu Dhabi: the Abu Dhabi Global Environmental Data Initiative (AGEDI). At the first Eye on Earth Summit, held in Abu Dhabi in December 2011, phase III of AGEDI was showcased, and the participants endorsed it and several other type II partnership initiatives. The participation of UNEP in the formulation of the special initiatives and the technical working papers for consideration at the Abu Dhabi summit will further enhance UNEP-Live services. Implementation of the initiatives endorsed at the Abu Dhabi Summit is expected to span the forthcoming five-year period and complement the role of UNEP in the rapidly changing information access world.

14.   UNEP is guided by the Bali Strategic Plan for Technology Support and Capacity-building, which was adopted by the Governing Council at its twenty-third session. Capacity development and technology support are essential components of UNEP-Live implementation. UNEP-Live will contribute to building countries' ability to gather and manage data and information for carrying out environmental assessments and, in so doing, encourage and support a move toward a more real-time process of keeping the global state of the environment under review. It will advocate, and assist countries in, the adoption and application of open standards that ensure the maximum reusability of data and information in ways that would not cause unnecessarily increase countries' data gathering and reporting obligations, including those under multilateral environmental agreements.

15.   UNEP-Live will adapt and build upon existing initiatives on environmental indicator development. For the implementation of the prototype, environmental indicators are being selected drawing upon the work undertaken for GEO-5, the preparation of the new UNEP publication *Keeping Track of Our Changing Environment: from Rio to Rio+20 (1992–2012)* and the Framework for the Development of Environmental Statistics developed by the United Nations Statistics Division.

2.   Systems architecture

16.   UNEP-Live, when fully developed, will function both as a publisher of services and content (e.g., UNEP environmental assessment reports and data) and a consumer of others' services and content (e.g., near-real time environmental monitoring data from national networks or social and economic data from other systems such as the "One United Nations" data portal).

17.   The initial phase of the UNEP-Live prototype, however, is intended primarily to consolidate and render more useful existing UNEP information assets, using technical resources and capabilities already available within UNEP. More specifically, attention has been focused on UNEP environmental assessment reports and value-added data and indicators, which are considered to represent a particularly unique value of UNEP services but which countries have reported are difficult to locate, gain access to and use. Some efforts have also been made to include basic functionality of some of the future services that will be offered through UNEP-Live. An important aspect of prototype implementation has been the flexibility to explore the potential of technical options as the functional requirements of UNEP-Live are progressively developed and refined.

18.   The main building blocks that constitute the 2011 UNEP-live prototype are outlined in subsections (a)–(e) below.

(a)   Access to environmental assessment reports

19.   UNEP environmental assessment reports generated between 1985 and 2011 are now available through a single web service.[5] Reports are fully indexed and can be found and used easily with a user-friendly interface. This component of UNEP-live responds to paragraph 13 of decision 26/2, calling for the development and maintenance of a web-based platform for presenting information on the status of the international environmental assessment landscape.

(b)   Data, indicators and maps

20.   Environmental data will be available either as statistics or map and imagery services, providing access to:

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5   http://unepdewaags.unep.org/uneplive.

(a)   Environmental indicators derived from Global Environment Outlook assessments and other sources;

(b)   Maps and other spatial databases developed by UNEP and various partners for a number of countries that have been published and made accessible through the Eye on Earth Network;

(c)   Satellite images showing environmental change hot spots, which are also accessible via Google Earth;

(d)   Links to other institutions' data including the United Nations Statistics Division's "One United Nations" data portal, World Bank indicators and the Group on Earth Observations Common Infrastructure.

(c)   "State of Environment Live"

21.   A component to be called "State of Environment Live" will be developed in 2012 and beyond. Its purpose will be to allow the content of existing state of environment reports to be updated dynamically and to be more interactive and engaging through a virtual dashboard linking narrative, graphics, data and indicators.

(d)   Country gateway

22.   The country gateway will provide access to national-level information in the UNEP repository, including maps published on the Eye on Earth Network. In addition there will be a directory of links to the websites of UNEP national partners.

(e)   Near-real-time alerts

23.   Early warning on emerging and developing environmental trends will be packaged as the Global Environmental Alert Service and provided to decision makers on a regular basis. Streaming of other relevant near-real-time data is envisaged.

C.   Future directions

24.   The UNEP-Live prototype will also aim to provide access to other existing UNEP data assets, including the treaty and legislative information coordinated through the United Nations information portal on multilateral environmental agreements,[6] and to integrate them closely with the assessments repository, the alerts component, the map and satellite image catalogue and other features of UNEP-Live. While this remains a viable aspiration for the future UNEP-live, the necessary technologies for integrating information across domains in this manner does not yet exist in the commercial platforms available to UNEP. Development work being carried out by UNEP partners, including the European Environment Agency, the Global Earth Observation System of Systems, the Institute of Electrical and Electronic Engineers and the Infrastructure for Spatial Information in the European Community, will make such linking of disparate information resources more tractable over the coming biennium, and the evolution of UNEP-Live will be closely coordinated with their efforts. The key enabling technologies for UNEP-Live will be linked open data and the use of brokerage services that will yield more effective assessment products by enabling data, information and knowledge from different types of communities to be more readily found, combined, compared and analysed.

25.   One particularly promising development that the Eye on Earth Network brings is the considerable streamlining of the means by which countries will be able to publish their own environmental data and information in elegant, eye-catching and highly effective ways. Meanwhile, over 50 States have committed themselves to implementing the principles of open government data and to making national statistical data sets available to their citizens and the world through the internet. Although these data relate mostly to economics and finance at present,[7] this development presents the potential and opportunity for UNEP, through the open standards approach of UNEP-Live, to advocate and support the additional effort that would ensure the inclusion of national environmental data in each country's open government offerings and make them accessible via UNEP-Live and the Eye on Earth Network using the data publishing solutions available from the latter. Such complementarity without duplication or competition will strengthen the approach of UNEP as the prototyping of UNEP-Live continues into 2012 and beyond. This approach responds to decision 26/2 which, among other things, requested Governments to engage in the development of UNEP-Live and in doing so to engage national institutions as distributed participants in UNEP-Live.

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6   www.informea.org.

7   See, for example, the data provided by Kenya at http://opendata.go.ke/ or by the United States of America at http://www.data.gov/.

Annex

I.   Keeping track of our changing environment

1.   The environmental changes that have swept the planet over the past 20 years are spotlighted in a UNEP report entitled *Keeping Track of our Changing Environment: From Rio to Rio+20 (1992-2012)*, which was published in October 2011 as part of GEO-5. Through data, graphics and satellite images, the report offers wide-ranging information on a number of key issues, such as the following:

(a)   Population:

(i)   As the world's population reaches 7 billion, urban population has grown by 45 per cent since 1992, yet the number of slum-dwellers has dropped from 46 per cent in 1990 to a third in 2010, thanks to improved housing and sanitation;

(ii)   The number of megacities, that is, cities with populations of at least 10 million, has grown from 10 in 1992 to 21 in 2010 – a 110 per cent increase;

(iii)   Globally, 1.4 billion people have no access to reliable electricity or the power grid;

(b)   Climate change:

(i)   Global carbon dioxide emissions continue to rise as a result of increasing use of fossil fuels, with 80 per cent coming from just 19 countries;

(ii)   The amount of carbon dioxide per dollar of GDP has dropped by 23 per cent since 1992, underlining that some decoupling of economic growth from resource use is occurring;

(iii)   Nearly all mountain glaciers around the world are retreating and getting thinner, with severe impacts on the environment and human well-being;

(iv)   Diminishing glaciers not only influence sea-level rise but also threaten the well-being of approximately one-sixth of the world's population;

(v)   Sea levels have been rising at an average rate of about 2.5 mm per year since 1992;

(c)   Energy:

(i)   Tracking energy trends since 1992, the report indicates that the contribution of renewable energy (including biomass) to the global energy supply stood at an estimated 16 per cent in 2010;

(ii)   Solar and wind energy accounted for only 0.3 per cent of total global energy. Increased recognition of the need to move to low-carbon, resource-efficient energy solutions can be seen in a 540 per cent increase in investments in sustainable energy between 2004 and 2010;

(iii)   Owing to decreasing prices of technologies and adoption of new policies, growth in biodiesel as a renewable energy source has jumped by 300,000 per cent, use of solar energy has increased by nearly 30,000 per cent, wind by 6,000 per cent and biofuels by 3,500 per cent;

(d)   Resource efficiency: the global use of natural resources rose by over 40 per cent from 1992 to 2005. The report warns that, unless concerted and rapid action is taken to curb and decouple resource depletion from economic growth, human activities may destroy the very environment that supports economies and sustains life;

(e)   Forests:

(i)   Despite the net reforestation now seen in Europe, North America and Asia and the Pacific, continuing forest loss in Africa and Latin America and the Caribbean means that global forest area has decreased by 300 million hectares since 1990;

(ii)   The annual 20 per cent rise in the number of forests receiving certificates for sustainable forestry practices shows that consumers are influencing timber

production. Only around 10 per cent of the world's forests, however, are under certified sustainable management;

(iii) A growing percentage of the world's forests has been replanted, and the area of such forests is currently equal to that of the United Republic of Tanzania;

(f) Food security and land use:

(i) Food production has risen by 45 per cent since 1992. This increased yield is heavily reliant on the use of fertilizers, which as well as enriching soil fertility can also have a negative impact on the environment, causing problems such as algal blooms in inland and marine waters;

(ii) Land used for organic farming is growing at an annual rate of 13 per cent;

(iii) The world will meet, or even exceed, the Millennium Development Goals target on access to drinking water, indicating that by 2015 nearly 90 per cent of the population in developing regions will have access to improved sources of drinking water, up from 77 per cent in 1990.

2. The report also indicates that environmental target-setting works best for well-defined issues such as phasing out leaded gasoline or ozone-depleting substances. The Montreal Protocol on Substances that Deplete the Ozone Layer, for example, used mandatory targets to phase-out the pollutants that were damaging the planet's protective ozone layer.

3. Over 90 per cent of all ozone-depleting substances under the treaty were phased out between 1992 and 2009. Similarly, only a small number of countries still use leaded gasoline and they are expected to make the switch over the next year or two.

4. Other data indicate that 13 per cent of the world's land surface, 7 per cent of its coastal waters and 1.4 per cent of its oceans are protected. There is a growing concern, however, that the oceans are becoming more acidic, as their pH declined from 8.11 in 1992 to 8.06 in 2007. This could have significant consequences for marine organisms, possibly altering species composition and disrupting marine food webs, and could damage fishing and tourism.

II. UNEP Year Book 2012

5. Published annually, the *UNEP Year Book* series highlights emerging issues and trends in the environment, thereby supplementing the less frequently published *GEO* assessment reports. The *UNEP Year Book 2012* (UNEP/GCSS.XII/INF/2), warns that unprecedented pressures on soils, resulting from increasing demand for land, is reducing valuable carbon stocks. Soil carbon plays a vital role in regulating climate, water supplies and biodiversity. In the past 25 years, however, a quarter of the world's land area has suffered a decline in productivity. The management of soil to sustain carbon is essential to preserving the ecosystem services that it provides and conserving this vital resource for future generations.

6. The report also focuses on nuclear decommissioning. The systematic deconstruction of a contaminated nuclear facility requires time, detailed planning and precise execution similar to that required for construction. Experience shows that decommissioning can be carried out in a safe, timely and cost-effective manner. There are, however, considerable geographical differences in expertise. Although much knowledge has been gained, lessons learned are not yet reflected in standard practice. One emerging lesson that is being applied is that future power plants should be designed for safe and efficient decommissioning as well as operation, accident prevention and safety to the public and the environment.