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Policy issues: International environmental governance

INTERGOVERNMENTAL PANEL ON GLOBAL ENVIRONMENTAL CHANGE

Note by the Executive Director

The present note contains elements for consideration regarding the establishment of an intergovernmental panel on global environmental change (IPEC). The note has been issued without formal editing.

Contents

* UNEP/GC.22/1.

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Summary
The increasing pace of human-induced global environmental change and its impacts on human society is being highlighted through international environmental assessments but is still not fully understood. Global environmental change is a broad concept without easily-defined boundaries. There are many assessment processes examining some aspect of global environmental change. What is needed is a mechanism that can review and assess the larger picture of the interaction between the whole global system and human society in all its dynamic complexity.

The Open-ended Intergovernmental Group of Ministers on International Environmental Governance (IEG) concluded that the increasing complexity of environmental degradation requires an enhanced capacity for scientific assessment, monitoring and early warning. In its report, adopted by the Governing Council / Global Ministerial Environment Forum (GC/GMEF) in decision UNEP/GCSSVII/1, it recommended the strengthening of UNEP's scientific base, through i.a., considering the establishment of an intergovernmental panel on global environmental change. The World Summit on Sustainable Development (WSSD) reinforced the role of science and assessments in strengthening policy and decision-making for sustainable development and called for the full implementation of the Governing Council decision, as did the UN General Assembly (UNGA).

The rationale shaping IPEC
The Intergovernmental Group further agreed that the mandate, modalities and composition of an Intergovernmental Panel on Global Environmental Change (IPEC) should be decided by GC/GMEF. The design of IPEC should be considered in light of several closely interrelated needs:

- *The need for a full implementation of the GC/GMEF decision on IEG as called for by WSSD and UNGA in order to further strengthen the implementation of the functions and responsibilities assigned to UNEP Governing Council by the General Assembly in 1972 (GA resolution 2997);*
- *The need for a holistic, continuos, systematic, integrated and multi-dimensional approach to the consideration of international environmental change and its implications for social and economic development, and to relate considerations of environmental change at the global level to sub-global trends and capacities for assessing those trends;*
- *The need to improve the scientific and technical advisory component of the policy cycle under the GC/GMEF so that it becomes more rigorous, systematic, integrated and attuned to specific localities and situations;*
- *The need to further engage government expertise in exercising strategic oversight of environmental assessments and providing high level scientific and technical advice to the Global Ministerial Environment Forum; and*
- *The need to strengthen the scientific base of UNEP by establishing a regular channel for dialogue between scientists and policy makers, and the mobilisation of scientific expertise to undertake integrated environmental assessments.*

IPEC – an open-ended subsidiary advisory organ to GC/GMEF
It is suggested that the GC/GMEF in reviewing the implementation of the IEG recommendations and in considering further measures for the strengthening of UNEP in light of the outcome of the WSSD formally establish IPEC as an open-ended multidisciplinary subsidiary advisory organ to GC/GMEF. The intergovernmental nature of IPEC will help avoid duplication, promote concerted efforts, ensure effective resource use, and support the diversity and vitality of the current system.

It is also suggested that the membership of IPEC be open-ended. This will ensure ownership by all governments and a consensus based dialogue, as is the case with the scientific and technical advisory bodies of the Multilateral Environmental Agreements (MEAs) and the plenary of the Intergovernmental Panel on Climate Change (IPCC).

Functions and responsibilities
The mandate of IPEC will be to provide scientific and technical advice to GC/GMEF with respect to the implementation of the functions and responsibilities assigned to it by the UNGA. In particular, IPEC would play a key role in keeping under review the world environment situation and its changes and in mobilising the contribution of the scientific community to this end. An important function would be to act upon requests

from GC/GMEF and prepare high level advice on global and regional issues that needs the attention of the ministerial forum. Findings of IPEC will be an important contribution to UNEP's Global Environmental Outlook process and report series.

IPEC will draw from existing assessments, but it will also analyse gaps in the assessment process and consider the need to initiate assessments to cover those. In particular, there is a need to analyse the scientific interlinkages, policy trade-offs and priorities between the different forms of environmental change. Furthermore, there is a need to identify the changes that are the most important once in relation to human well being and development. There is also a need for UNEP to contribute to a number of new assessment initiatives not implemented by UNEP, e.g. the Global Marine Assessment process as agreed in the WSSD and UNGA; the Agricultural Assessment initiative as proposed by the World Bank; the assessment of tropospheric pollution; and calls from other bodies such as the sovereign bodies of the Multilateral Environmental Agreements.

Working modalities

The effective operations of a body such as IPEC will require clear procedures, which i.a. outline the role of a possible extended bureau, working groups and expert groups as well as the secretariat. It is suggested that the Governing Council request the Panel to develop its own working modalities based on experience from similar bodies. The working modalities will typically include the establishment of agreed principles and procedures to ensure that any assessment commissioned by the Panel is scientifically independent, credible, salient, and legitimate.

In initiating assessments, IPEC would establish expert groups to undertake the scientific part of the assessment process. Members of expert groups would be chosen on the basis of scientific merit while also striving to ensure a balanced geographical and gender representation. Their outputs would be subject to extensive expert and government peer review prior to consideration by the Panel.

The Panel should consider how to ensure the effective participation of developing countries in both the Panel and in expert groups working under the panel. Such considerations should also include the need for capacity building in developing countries andbuild upon UNEPs capacity building efforts in the field. These already include development of training material, various forms of training, networking and establishment of fellowship programs for participation in international assessment processes.

Developing a work plan

There is a need to ensure that the Panel does not duplicate the work of existing assessments but provides high level advice on global environmental changeto the GMEF. The intergovernmental nature and scientific support structure of the Panel would ensure this. It is suggested that the GC/GMEF request IPEC to develop its work plan in response to the agenda of and requests from GC/GMEF. The work plan should also reflect the need to develop and apply conceptual frameworks and models to integrate the scientific understanding of different dimensions of global environmental change with their social and economic consequences as a basis for improved planning and priority setting both globally and at the national level.

In developing its work plan it will draw upon lessons learned from established assessments and related research. The plan needs to be defined on the basis of close co-operation and a clear division of labour between the Panel and major assessment practitioners. The panel could play an important role in supporting environmental authorities at all scales in using science as a tool for mainstreaming environment into development.

Financial and administrative consequences

The financial and administrative implications of establishing the panel include meeting and travel costs of the panel, costs of running the IPEC Secretariat, costs of undertaking assessments and related publication costs. An estimate of the cost related to these components ranges from US$ 1,950,000 to US$ 3,900,00 annually. Variables in this respect include the number of working languages used and the number of targeted assessments commissioned by the Panel. The Governing Council may wish to authorise the Executive Director to establish a trust fund to cover the above mentioned activities of the Panel and

secretariat. Close co-operation and a clear division of labor should be fostered between the Panel and other similar bodies and assessment and advisory initiatives.

The way forward

The GC/GMEF would interact with IPEC on a regular basis by providing guidance and requests and receiving reports and advice. By documenting and quantifying relationships between different aspects of environmental change and development, the IPEC process will help to set the agenda for the Global Ministerial Environment Forum, and will provide Environment Ministers with materials that they can use in discussions with their fellow ministers at the national level. The immediate challenge once the Panel is formally established is to decide where to start with what is inevitably a vast agenda.

The follow up to the formal establishment of IPEC will include consultations with governments, the scientific community, other UN-agencies and partners in order to prepare for a constituting meeting of the Panel. Such a meeting will focus on developing the working modalities of IPEC including how to build capacity in developing countries for participation in the work of the Panel and on developing a work plan for IPEC, which includes the scope and the conceptual framework for the Panel.

Introduction

The environment provides society with a range of goods and services that are essential for human survival, well being, cultural diversity and economic prosperity. For this reason, there is a need to continuously improve our understanding of the linkages between environment and development, and the interactions between human society and environment. The increasing pace of human-induced global environmental change and its impacts on human society is being highlighted through the various sectoral environmental assessments being carried out but is still not fully understood.

Many global environmental change problems are interlinked. Global warming impacts ozone depletion and recovery in the stratosphere. Land cover and biodiversity changes impact climate, which in turn affects water availability and agriculture. They are also caused by similar driving forces such as: population dynamics, level of consumption, choice of technologies, and distribution of and access to resources and rights.

Furthermore, the major development challenges, *i.a.* as expressed in the World Summit on Sustainable Development and the Millennium Development Goals (MDGs), are closely related to the main environmental problems. Alleviation of poverty and promotion of fair trade, good health, food security, and access to energy are closely related to climate change, loss of biodiversity, land and water degradation, depletion of stratospheric ozone, and accumulation of waste and persistent organic pollutants in the environment.

The Open-ended Intergovernmental Group of Ministers on International Environmental Governance (IEG) concluded that the increasing complexity of environmental degradation requires an enhanced capacity for scientific assessment, monitoring and early warning.

The Group further recommended that:
"Further consideration should be given to strengthening UNEP's scientific base by improving its ability to monitor and assess global environmental change including i.a. through the establishment of an intergovernmental panel on global environmental change. The effective participation of developing countries in the work of the panel should be ensured, and the mandate, modalities and composition of any mechanism are to be decided by the Governing Council/Global Ministerial Environment Forum."
(UNEP/GCSSVII/1, Appendix 1, para 11. (h) (i.).

The report of the ministerial group was adopted by the Governing Council / Global Ministerial Environment Forum (GC/GMEF) at its seventh special session (decision UNEP/GCSSVII/1). It agreed to review the implementation of the IEG recommendations and to consider further measures for the strengthening of UNEP in light of the outcome of the WSSD at its twenty-second session. The WSSD and the UN General Assembly (UNGA) called for a full implementation of the Governing Council decision. The WSSD furthermore underscored the role of science and assessments in strengthening policy and decision-making for sustainable development i.a. through the "establishment of regular channels between scientists and policy makers for requesting and receiving policy advice".

The formal establishment of an Intergovernmental Panel on Global Environmental Change (IPEC) should be considered as an integral part of the implementation of the IEG decision and in considering further measures for the strengthening of the UNEP in light of the outcome of the WSSD. The current document elaborates on the part of document UNEP/GC.22/4/Add.1 that contains the suggested decision for establishing an Intergovernmental Panel on Global Environmental Change as a subsidiary advisory body to GC/GMEF. Key issues to consider include the rationale shaping the nature of IPEC, its composition, its functions and responsibilities in support of GC/GMEF, its working modalities, its work plan, and the financial and administrative implications of establishing IPEC.

I. RATIONALE FOR ESTABLISHING IPEC AS A SUBSIDIARY ADVISORY ORGAN TO GC/GMEF

The design of IPEC as a subsidiary advisory organ to GC/GMEF should be considered in light of several closely interrelated needs:

- The need for a full implementation of the GC/GMEF decision on IEG as called for by WSSD and UNGA in order to further strengthen the implementation of the functions and responsibilities assigned to UNEP Governing Council by the General Assembly in 1972 (GA resolution 2997);
- The need for a holistic, continuos, systematic, integrated and multi-dimensional approach to the consideration of international environmental change and its implications for social and economic development as well as to relate considerations of environmental change at the global level to sub-global trends and capacities for assessing those trends;
- The need to improve the scientific and technical advisory component of the policy cycle under the GC/GMEF so that it becomes more rigorous, systematic, integrated and attuned to specific localities and situations;
- The need to further engage government expertise in exercising strategic oversight of environmental assessments and providing high level scientific and technical advice to the Global Ministerial Environment Forum; and
- The need to strengthen the scientific base of UNEP by establishing a regular channel for dialogue between scientists and policy makers, and mobilisation of scientific expertise to undertake integrated environmental assessments.

Global environmental change generally takes place at the scale of decades if not centuries. The third Global Environment Outlook report (GEO-3) pointed out that the impacts of many environmentally relevant policies put into place over the next 30 years would not be apparent until long after their inception. In line with the IEG recommendations it therefore calls for a rethinking of environmental institutions and the strengthening of the policy cycle so that it becomes more rigorous, systematic, integrated and attuned to specific localities and situations. The establishment of the annual Global Ministerial Environment Forum by UNGA in its decision 53/254 was a significant step in the direction of a strengthened environmental policy cycle.

The need for a holistic, continuos, systematic, integrated and multi-dimensional approach to the consideration of global environmental change and its implications for social and economic development is well recognised. There are many assessment processes that are examining some aspect of the increasing pace of human-induced global environmental change. What is called for now is a mechanism that can review and assess the larger picture of the multi-scaled interaction between the whole global system and human society in all its dynamic complexity. A flexible mechanism is needed that can adapt assessment processes to the priorities of the moment, rather than creating separate fixed structures with their own inertia. Such a mechanism also needs to serve as a regular channel for dialogue between scientists and policy makers that would help shorten the time lag that often exists between scientific findings, political action and results.

There is a pressing need to focus the best scientific knowledge and the most advanced modeling and predictive tools on the challenges of managing global-scale environmental change in all its complexity. Such systems are more than the sum of their parts, with their own characteristics and emergent properties that can produce surprises, both in terms of catastrophic effects on humans and of unexpected resilience. However, since most global environmental impacts are the cumulative result of many human activities, most actions for environmental management must be taken at the national or even local levels. There will also be regional, national and local differences in the ways that global environmental change impacts on human societies that will need to be taken into account rather than hidden in global averages. This requires a global-scale integrated scientific assessment process connected to global, national and local level policy making. Establishing IPEC will help meet these needs.

The main rationale for its establishment is to further strengthen the policy and decision-making cycle of the GC/GMEF and the implementation of the functions and responsibilities assigned to GC by the UNGA in 1972 (GA resolution 2997). The establishment of the annual Global Ministerial Environment Forum by UNGA in its decision 53/254 was a significant step in strengthening the environmental policy cycle. The creation of IPEC in support of the Forum will be a logical further step in the same direction. The establishment of the Panel will furthermore strengthen the scientific base of UNEP through mobilization of scientific and technical expertise for independent, integrated, and peer reviewed environmental assessments.

IPEC should be designed so it can draw from or call upon existing assessments as well as initiate its own assessments depending on what appears to be the most cost effective alternative. The strength of IPEC as an assessment mechanism that has direct connections to government policy makers and can respond and tailor the assessments to their needs should be fully utilized. The design of IPEC should also allow for a flexible, incremental and stepwise assessment process, drawing on the lessons learnt from existing and past assessments as well as the wealth of information from sub-global level.

Given the complexity of the issue of global environmental change and the diverse and multifaceted nature of the current assessment structure (see Appendix 1), there is a need to give due considerations to how to fully engage government expertise in the work of the panel. The intergovernmental nature and scientific support structure of IPEC should be designed to avoid duplication, promote concerted efforts, ensure effective resource use, and support the diversity and vitality of the current system. The intergovernmental nature of IPEC should also be seen as an important feature for performing the function of considering assessment findings and translating those findings into scientific and technical advice in response to requests from GC/GMEF.

The formal establishment of IPEC will bring UNEP in line with the broader International Environmental Governance (IEG) structure, notably the MEAs who have developed intergovernmental structures and mobilised government nominated expertise to provide the decision making bodies with scientific and technical analyses and advice. IPEC will therefore serve to strengthen GC/GMEF's authority and subsequently enhance its ability to fulfil its mandate to promote co-operation, concerted action and synergy among the different entities of the existing IEG structure. A more coherent approach in this respect will in turn benefit other social and economic sectors and users, which increasingly need to relate to credible cohesive environmental information and policy advice.

The IPEC will also, from its very nature as the scientific advisory body to the GC/GMEF, build an increasing cadre of scientists in all countries able to understand policy-making processes and to provide policy-relevant advice. This will not only benefit the Panel and the policy-makers it serves, but will also strengthen advisory processes at the national level by building a pool of experts to whom ministers and governments can more easily turn in time of need.

II. COMPOSITION, MANDATE AND RESPONSIBILITIES OF IPEC

The Intergovernmental Group further agreed that the mandate, modalities and composition of an Intergovernmental Panel on Global Environmental Change (IPEC) should be decided by GC/GMEF. In accordance with rule 62 of the rules of procedures of the Governing Council, it is suggested that the Panel is established as a subsidiary advisory organ to the Governing Council/Global Ministerial Environment Forum.

It is furthermore suggested that the Panel be multidisciplinary with a membership open to any State Member of the United Nations or member of a specialised agency and the International Atomic Energy Agency. The Panel would also be open to observers in accordance with rules 68 and 69. The open ended nature will ensure ownership by all governments and a consensus based dialogue, as is the case with the scientific and technical advisory bodies of the Multilateral Environmental Agreements (MEAs) and the plenary of the Intergovernmental Panel on Climate Change (IPCC).

Like other intergovernmental bodies the panel will be comprised of government nominated expert delegations in accordance with issues on the agenda of the Panel. The *multidisciplinary nature* will ensure an integrated approach to the tasks being performed by the Panel at all levels.

It is also suggested that the mandate of the IPEC is kept broad and generic within the relevant functions and responsibilities of the Governing Council. The IPEC will play a key role in implementing Governing Council's responsibility: "*to keep under review the world environmental situation in order to ensure that emerging environmental problems of wide international significance receive appropriate and adequate consideration by Governments*" (GA resolution 2997 (1972) (part I, paragraph 2 (c)). In this respect the Panel will in particular pay attention to environmental changes of international significance and its consequences for social and economic development.

The GC/GMEF may also wish to make the IPEC instrumental in implementing Governing Council's responsibility to: "*to promote the contribution of the relevant international scientific and other professional communities to … monitoring and assessment …"* (GA resolution 2997 (1972) (part I, paragraph 2 (e)). A key function will be to provide the Governing Council/Global Ministerial Environment Forum and, as appropriate its other subsidiary bodies with scientific and technical advice related to the implementation of the UNEP mandate (see Figure 1).

Overall the panel would then be responsible for identification of overarching assessment needs, for commissioning and receiving relevant assessment findings on behalf of the GC/GMEF and for giving scientific, technical and policy advice to the GC/GMEF based on those findings.. IPEC will act upon request from GC/GMEF and prepare high level advice on global and regional issues that needs the attention of the ministerial forum. In this respect, IPEC will combine the function of the Intergovernmental Panel on Climate Change (IPCC) with those of the subsidiary bodies on scientific and technical advice under the Multilateral Environmental Agreements (MEAs). The IPEC should be required to report regularly to the Governing Council/Global Ministerial Environment Forum on all aspects of its work

There is a need to ensure that the Panel does not duplicate the work of existing assessments. The intergovernmental nature and scientific support structure of the Panel would promote co-ordination and reduce the possibility of such overlaps. Rather, it could synthesise and integrate the findings of thematic assessments in order to develop a better understanding of the scientific interlinkages and the policy and technology trade-offs among the different issues such as climate change, ozone, biodiversity and degradation of terrestrial and aquatic ecosystems. GEO will be a key component in this respect.

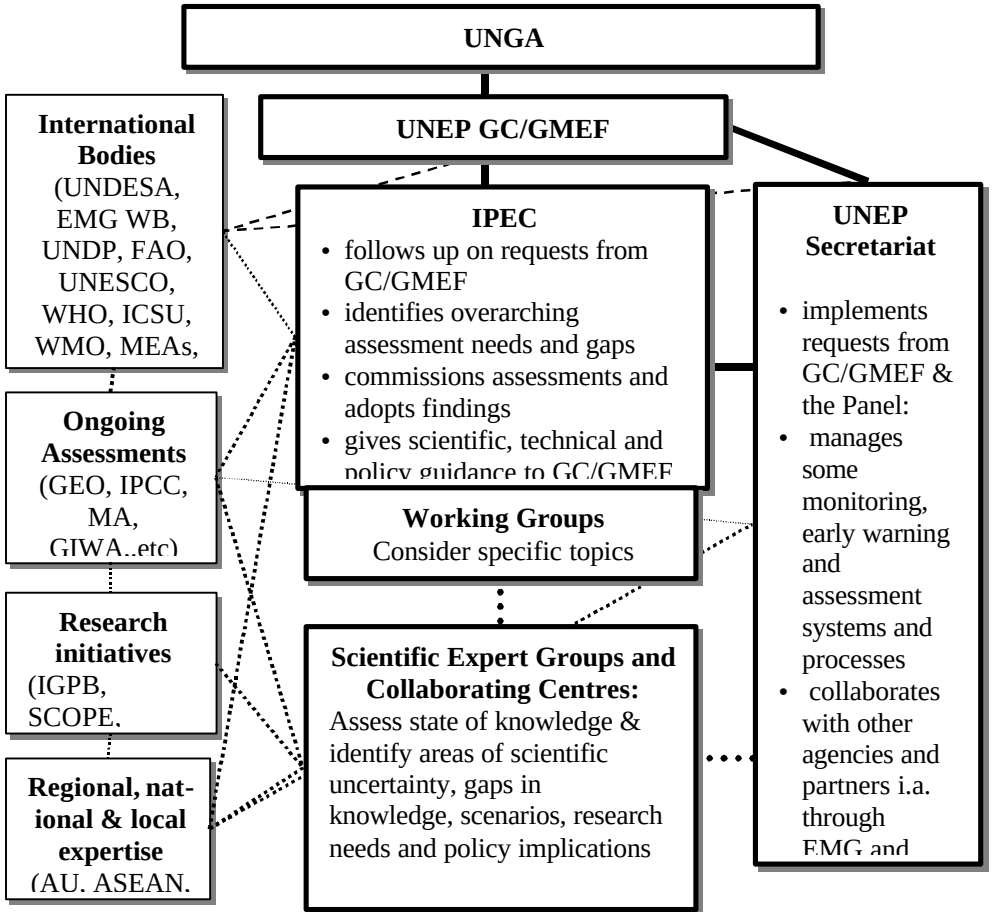

Figure 1. Indication of place, role and functions of the Intergovernmental Panel on Global Environmental Change

In creating such synergy, IPEC will draw upon lessons learned from established assessments and related research[1] to streamline and reduce duplication of international assessments. It would help identify and prioritise gaps in the assessment structure and initiate assessments to fill these gaps if so desired. It will also assist in identifying the overall environmental contribution to major development challenges and thereby contribute to mainstreaming environment into sectoral activities.

III. THE WORKING MODALITIES OF IPEC

In accordance with paragraph 3 and 4 of rule 69 of the rules of procedures of the Governing Council the Panel would elect its own officers and meet as necessary. Like other open-ended science advice mechanisms in the UN-system the panel might want to consider electing an extended bureau to facilitate its operations. In line with the practice for similar scientific and technical bodies it is suggested that the Panel meet annually and that it constitutes its own bureau in line with the rules of procedures of the Governing Council. Furthermore, the Panel might want to constitute open-ended Working Groups for specific tasks or issues.

A small Secretariat, to be provided by the Executive Director of UNEP, would support the day to day functioning of the Panel. As indicated in Figure 1, the functions of the secretariat would include responding to requests from IPEC and GC/GMEF, managing the assessment process and facilitating co-operation with other agencies and partners.

The effective operations of a body such as IPEC will require clear procedures, which i.a. could outline the role of a possible extended bureau, working groups and expert groups as well as the secretariat. It is suggested that the Governing Council request the Panel to develop its own working modalities based on experience from similar bodies.

Such experiences show that the assessment processes are clearly not an end in themselves. Assessments must be policy relevant, and feed into and support policy and decision-making processes to have utility and value to environmental management. Key characteristics of "effective" assessments (i.e. assessments perceived as being credible, salient and legitimate) include who is involved (participation), how assessments are conducted (science and governance) and the scope of the assessment (focus) [2]. The working modalities of IPEC would therefor typically include the establishment of procedures to ensure that any assessment commissioned by the Panel adhere to these characteristics.

A draft set of principles and procedures governing assessments under the Panel based on the equivalent procedures for the IPCC is attached in Appendix 2. Once the Panel has identified the need for an assessment, the process would be referred to Expert Groups and supporting external expert collaborating centres and managed by the UNEP secretariat.

Members of Expert Groups (co-ordinating authors, lead authors and contributors) and supporting institutions would be chosen on the basis of scientific merit, paying due attention to the need for ensuring a balanced geographical and gender representation of experts wherever possible. Their outputs, typically pyramidal in structure, ranging from technical reports to summaries for policymakers, would be subject to extensive expert and government peer review prior to consideration by the Panel.

Summaries for policy makers of specific assessments would be put to the Panel for its consideration, and serve as a basis for the development of recommendations and advice to the Governing Council/Global

[1] Relevant international environmental assessments such as: i.a. the Intergovernmental Panel on Climate Change (IPCC); the Ozone Assessments under the Montreal Protocol; the Global Biodiversity Assessment (1995); the Millennium Ecosystem Assessment; the GESAMP and related ocean initiatives; the Global International Water Assessment (GIWA); the Global Environment Outlook (GEO); the FAO forest assessment; regional environmental assessments, and relevant research initiatives: i.a. he International Council for Scientific Unions (ICSU) and its Scientific Committee on Problems of the Environment (SCOPE), the International Geosphere-Biosphere Programme (IGBP); the World Climate Research Programme (WCRP); the International Human Dimensions Programme on Global Change (IHDP); and DIVERSITAS and their common Earth System Science Partnership (ESSP) initiative.

[2] Eckley, Noelle (2001). Designing effective assessments: the role of participation, science and governance, and focus. Report of a workshop co-organized by the European Environment Agency and the Global Environmental Assessment Project, Copenhagen, Denmark, 1 to 3 March 2001. EEA Environmental issue report No. 26.

Ministerial Environment Forum. The current draft includes procedures for use of non-peer reviewed literature in the assessment process. Additional procedures could be added for use of traditional and indigenous knowledge as is the case is in the Millennium Ecosystem Assessment (MA).

The Panel should be directed to consider how to ensure the effective participation of developing countries in both the Panel and in expert groups working under the panel. Such considerations should also include the need for capacity building in developing countries and build upon UNEPs capacity building efforts in the field. These already include development of training material, various forms of training, networking and establishment of fellowship programs for participation in the international assessment process.

Capacity building is essential both to fill significant geographic gaps in the availability of scientific information, and to ensure that the policy recommendations are appropriate and applicable in all parts of the world. Experience has shown that the participation of developing country experts in international processes increases their stature in their own countries and their role as advisers to their own governments. This will also strengthen the advisory processes at the national level by building a pool of experts to whom ministers and governments can more easily turn in time of need.

In considering its working modalities, the panel should also give attention to the issue of knowledge, data and information management. These efforts should be linked to UNEP's wider activities in the field. It should include both management of information as a basis for the assessment process as well as management and promotion of the findings of the assessment as a basis for policy and decision-making.

IV. THE WORK PLAN AND CONCEPTUAL FRAMEWORK FOR IPEC

It is suggested that GC/GMEF request IPEC to develop a work plan that reflects the agenda of GC/GMEF. It is envisaged that the work plan would be subject to direction by the GC/GMEF and that the Panel will support the agenda of the GC/GMEF. In the IEG recommendations it was agreed that the GC/GMEF should structure its agenda *i.a.* focusing on addressing "environmental aspects of one or two selected sectoral issues on an annual basis (such as chemicals, water, oceans), as well as the environmental contribution to major development challenges". The GC/GMEF may wish to request IPEC to provide input to the consideration of these issues.

In considering environmental aspects of one or two selected annual sectoral issues, the work plan could include an analysis of gaps in the assessment process and consider the need to initiate assessments to cover such gaps. Such an analysis could both cover current gaps as well as future ones due to the fact that a number of the current major assessments are undertaken in the form of time limited projects (see Appendix 1).

In particular, there is a need to analyse the scientific interlinkages, policy trade-offs and priorities between the different forms of environmental issues. There are significant interactions and feedbacks between different change processes. Global warming impacts ozone depletion and recovery in the stratosphere. Land cover and biodiversity changes impact climate, which in turn affects water availability and agriculture. Every environmental change has significant social and economic impacts at various scales in time and space. Policy decisions in any one area cannot be made in isolation from their implications for all other areas.

The work plan may alsoinclude topics such as UNEP's contribution to the assessment of issues such as: the Global Marine Assessment process as agreed in the WSSD and UNGA; the Agricultural Assessment initiative as proposed by the World Bank; and the assessment of tropospheric pollution. IPEC might also respond to calls from others such as the sovereign bodies of the MEAs in terms of contributing to part of their assessment needs, as in the case is for the Millennium Ecosystem assessment (see GC.22/4/Inf27). Findings of the panel would be an important contribution to the Global Environmental Outlook process and report series.

In considering the environmental contribution to major development challenges the GC/GMEF might wish to direct the IPEC to consider the major development challenges, *inter alia* as they are expressed in the World Summit on Sustainable Development and the Millennium Development Goals. Considerations should be given to the complex cycle of interactions connecting environment and society (Figure 2) whereby the

earth's physical, chemical and biological environment (atmosphere, land and water) provide society with environmental goods and services that are essential for human survival, wellbeing and cultural diversity.

Focus could be placed on identifying the most important environmental changes in relation to human well being and development. This will require quantifying both human impacts on the environment, and the vulnerability of humans to environmental changes. By providing the basis for relating environmental changes more directly to the consequences for people, such as poverty, hunger, illness, migration, conflict, and cultural and spiritual impoverishment, the IPEC could strengthen environment ministers' participation in national debates.

The work plan should also reflect the need to develop and apply conceptual frameworks to integrate the scientific understanding of different dimensions of global environmental change with their social and economic consequences as a basis for improved planning and priority setting both globally and at the national level. Such conceptual frameworks must be both robust and sophisticated. They are necessary both for understanding the dynamics within and between environment and society through monitoring, research, assessment, modeling, indicators, and indexes, and for addressing the necessary responses, such as norms, standards, governance structures, plans, policies and actions. A framework is also important for the development of an agreed nomenclature for tackling these complex issues. To start with, ecological principles may provide some of the basic concepts for interactions between human society and the environment, and current economic, social and ecological models might be useful in establishing a coherent framework. Such a conceptual framework would be characterized by being:

- able to integrate human (social & economic) and environmental aspects;
- universally applicable (at various scales in time and space);
- policy relevant and intuitively easy to grasp and communicate;
- scientifically relevant and able to support and aggregate highly complex information and dynamics; and
- built on and able to integrate existing concepts and perspectives.

An important area for action by the IPEC will be to integrate assessments across all the relevant issues to assemble a comprehensive perspective on global environmental change. This will require not only a wide range of expert opinion, but also the use of tools such as computer modeling. Just as the IPCC has depended on climate models to understand and project the complex dynamics of the climate system, so will an understanding of global environmental change require computer models, or more probably nested sets of models for different aspects of the environmental and human systems.

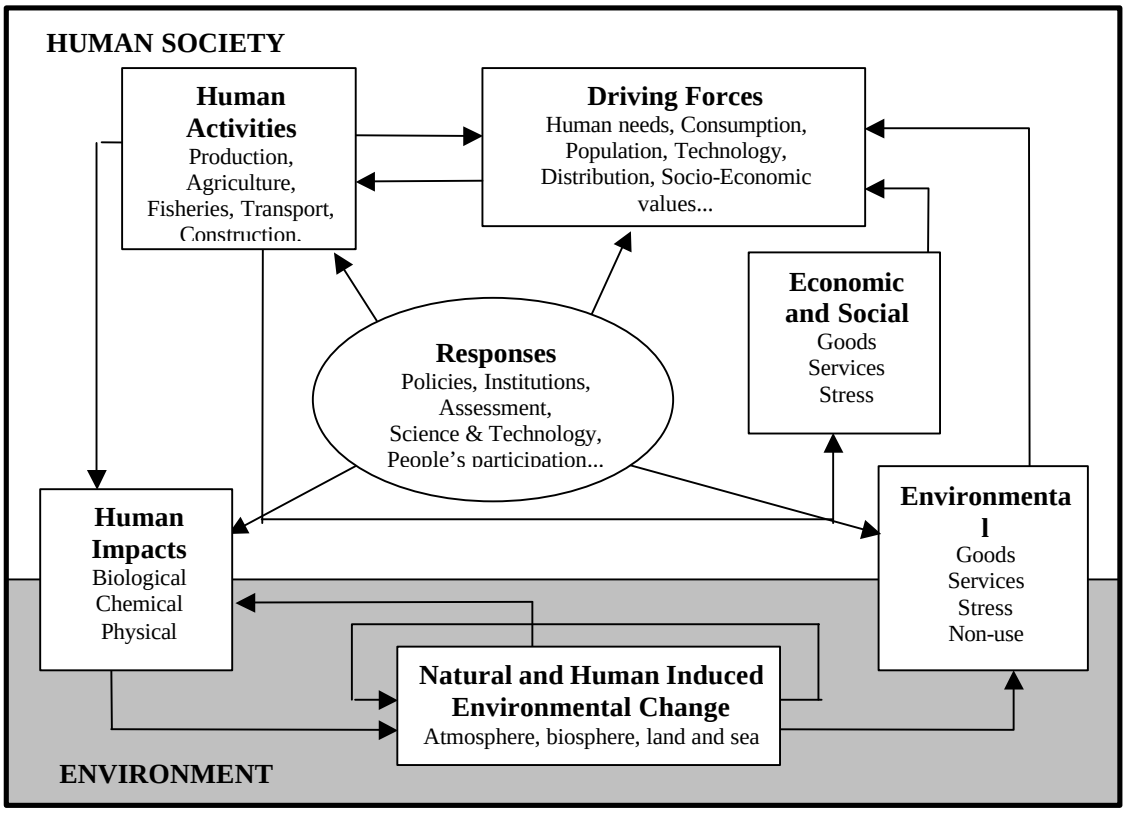

Figure 2. Indication of the interaction between environment and human society Change

Again following the IPCC example, it would be better to encourage the development of several different models using different structures and methods, as the convergent results of different models increase confidence in the outcomes. It would be desirable for at least some of the modeling groups to be based in developing countries in order to reflect their perspectives. The models can then be used by expert groups to develop scenarios for future global environmental change to assist the Panel in its deliberations.

The combination of environmental systems models for the scientific aspects of global environmental change, coupled with economic models and accounting systems for the costs and benefits of global change, and social models to determine the populations affected and the consequences for different countries, societies and vulnerable populations, will provide a strong rational basis for determining priorities among environmental issues, in which weighting factors such as economic costs, numbers of people affected, and the irreversibility of environmental damage (such as species extinctions) can all be considered together.

Models also make it possible to experiment with alternative courses of action and priority weightings, which can illustrate the trade-offs between different policies and investment strategies. The Panel can then develop a comprehensive framework for its policy recommendations through a transparent and consensual process based on the best information available.

The development of conceptual frameworks and models should also be considered in light of the fact that environmental problems are increasingly interrelated with the social and economic sectors, as these are closer to the root causes of the problem and have the resources and tools to address them. Therefore, increasing demands are placed on environmental authorities to work together with these sectors, to provide them with environmental information and to help identify environmental challenges and their solutions.

IPEC could play an important role in the development of a "macro-environmental" framework and parameters analogous to macro-economics, to simplify presentation of the complexity of environmental interlinkages and aid decision makers in tracking and prioritizing the mass of environmental priorities with

which they are faced. It could support environmental authorities at global, regional and international sub-regional scales in using science as a tool to analyse these causal chains and facilitate mainstreaming environment into development (see Fig 3). An in- depth understanding of both environmental and socio-economic dynamics is required for the development of the necessary concepts, policies and tools for environmental management in support of development.

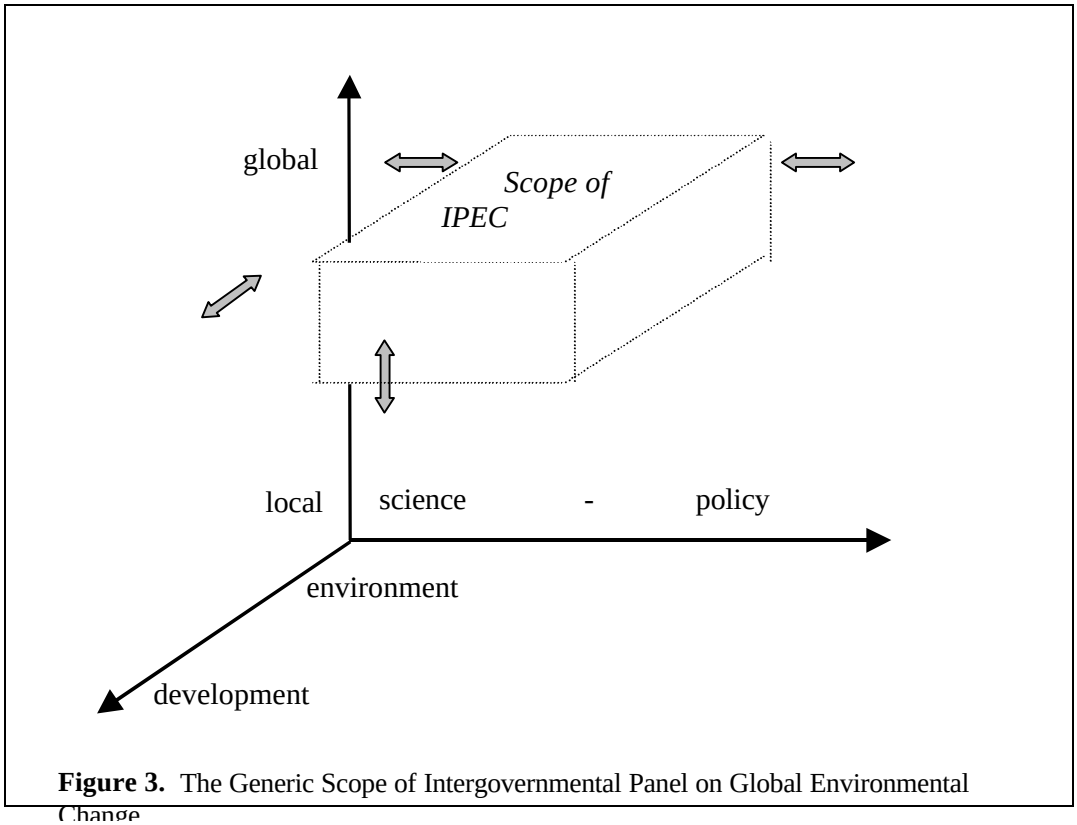

Figure 3. The Generic Scope of Intergovernmental Panel on Global Environmental Change

In drawing up its own work plan, IPEC would also tap into the experience from existing and past assessments and research. The scope of the work plan would be defined on the basis of close co-operation and a clear division of labour between IPEC and major assessment practitioners such as: IPCC; the subsidiary bodies under the Multilateral Environmental Agreements; the Scientific and Technical Advisory Panel to the Global Environment Facility; and existing global assessment projects.

V. FINANCIAL AND ADMINISTRATIVE CONSEQUENCES OF ESTABLISHING IPEC

As a subsidiary organ to Governing Council/Global Ministerial Environment Forum, the Panel would be served and supported by the UNEP secretariat and all its sub-programmes The work of the Panel would influence the work programme and synergistically be adding value to what has been achieved so far *i.a.* with regard to GEO and the thematic assessments. This activity has been incorporated into UNEP's Programme of work and budget for 2004 to 2005 for consideration of UNEP Governing Council/Global Ministerial Environment Forum.

The additional financial and administrative implications of the panel should be considered in light of the experience from the IPCC and other intergovernmental scientific assessments (see Appendix 1). The key components in this respect would be:

- Annual plenary meetings, including interpretation costs, documentation costs and travel costs for participants from developing countries;
- Secretariat costs;

- Costs of targeted scientific and technical assessments under the auspices of the Panel including expert group meetings, travel costs for experts, peer review of documentation, contracts with external supporting institutions and additional secretarial support in UNEP; and
- Publication costs of technical reports, summaries for policymakers and other products.

The costs related to these components are laid out in Table 1. Variables in this respect are the number of working languages used and the number of targeted assessments commissioned by the Panel. The Governing Council may wish to authorise the Executive Director to establish a trust fund for covering the above mentioned activities of the Panel and secretariat. These activities will be subject to the availability of funds.

In recognition of the fact that various parallel and independent assessment processes exist, and that the Panel will not be able to respond to all assessment needs, mechanisms to foster close links between the Panel and other assessments is essential. One key mechanism is that the Panel would invite other assessments to present their findings for its consideration as well as to consider specific issues of common interest.

Close co-operation and a clear division of labour should be fostered between the Panel and the Intergovernmental Panel on Climate Change, the relevant subsidiary bodies under the Multilateral Environmental Agreements and the Scientific and Technical Advisory Panel to the Global Environment Facility. Joint meetings between the bureaus of these bodies would be an important co-ordination mechanism. Close linkages should also be established between the Panel and existing global assessment projects and processes such as the Global Environment Outlook (GEO), the Millennium Ecosystem Assessment project (MA), the Global International Waters Assessment project (GIWA), the GESAMP and related ocean initiatives, the upcoming Land Degradation in Dry Land project (LADA), the FAO Forest Resource Assessment, the Agricultural Assessment proposed by the World Bank and regional environmental assessments.

An important feature of IPEC will be the flexible nature of its own assessment processes. Where it identifies an issue for which no assessment exists, it can discuss with existing assessment mechanisms if any of them can incorporate the needed assessment into their own work. If not, it can create its own expert groups to address these issues on an *ad hoc* basis. This will avoid the creation of an increasing number of independent and more or less permanent assessment mechanisms, with all the costs and inertia that this implies.

	Documentation & Meeting Costs	**Option 1**	**Option 2**	**Option 3**
A. Annual meeting costs	1 Language	US$ 100,000.		
	3 Languages		US$ 250,000.	
	6 Languages			US$ 400,000.
	Travel support	US$ 600,000.	US$ 600,000.	US$ 600,000.
B. Secretariat costs (including one P5, One P3 and one G4)		US$ 500,000.	US$ 500,000.	US$ 500,000.
C. Operational Costs	1 Annual Assessment Report (each include 4 Expert Group meetings, review and report writing)	US$ 600,000.		

	2 Annual Assessment Reports		US$1,200,000.	US$ 1,200,000.
D. Report Publication (editing, design, graphics, translation, printing, distribution, internet and CD ROM)	1 Assessment Report 1 language 6 languages 2 Assessment reports 6 languages	US$ 150,000	US$ 600,00.00	US$ 1,200,000,
TOTAL		US$ 1,950,000	US$ 3,150,000	US$ 3,900,00

Table1 Estimated annual costs related to the establishments and operations of the Intergovernmental Panel on Global Environmental Change

This does not mean that everything should be centralized in one structure, but that the most cost-effective alternatives should be sought in each case. It may be more efficient to have IPEC providing an umbrella integrating the different components into a more comprehensive framework, rather than each thematic assessment trying to broaden itself to cover the larger framework within which its issue is set. This point will be important when it comes to considering the future of several new assessment processes that are presently designed as a time limited thematic assessment but where the issue of institutionalizing them into a continuing assessment process are likely to emerge.

The Panel will also have to identify research needs, both for its own processes of integration across all aspects of global environmental change and with social and economic factors, and where it identifies problems or emerging issues that require scientific elucidation. This will require the establishment of working relationships with relevant international research initiatives, such as the International Council for Science (ICSU) and its Scientific Committee on Problems of the Environment (SCOPE); the International Geosphere-Biosphere Programme (IGBP); the World Climate Research Programme (WCRP); the International Human Dimensions Programme on Global Change (IHDP); DIVERSITAS; and their common Earth System Science Partnership (ESSP) initiative.

As the Panel would foster open and transparent inter-govermental processes related to international scientific environmental assessments, it would also provide for an integrated involvement of UNEP's collaborating centers and other existing initiatives in this field. In this respect, the Panel would not only assist in fostering informed decision making, but could also provide important support to the UN system through the Environment Management Group (EMG), the system-wide Earthwatch working party, which are tasked with inter-agency cooperation in the field of the environment.

VI. THE WAY FORWARD

It is suggested that the Governing Council implement the IEG recommendation by formally establishing IPEC as an open-ended multidisciplinary subsidiary advisory organ. In the case of such a decision the way forward would be to prepare for the first meeting of the panel in 2003.

The GC/GMEF would through providing guidance and requests and receiving reports and advice interact with IPEC on a regular basis. By documenting and quantifying relationships between different aspects of environmental change and development, the IPEC process will help to set the agenda for the Global Ministerial Environment Forum, and will provide Environment Ministers with materials that they can use in discussions with their fellow ministers at the national level. The immediate challenge once the Panel is formally established is to decide where to start with what is inevitably a vast agenda.

In preparing for the first IPEC meeting the Executive Director will undertake consultations with governments, the scientific community, UN-agencies and other partners. The first meeting will focus on developing the working modalities of the IPEC including how to build capacity in developing countries to

participate in the work of the Panel and on developing a work plan for IPEC, which include the scope and the conceptual framework for the Panel.

Appendix 1 Key Characteristics of Selected Global Environmental Assessment Processes

	Mandate
Forest Resource Assessment (FRA) 1947 -	After reviewing the results of FAO's first world survey of forests in 1947, the sixth session of the FAO Conference in 1951 recommended that the Organization "maintain a permanent capability to provide information on the state of the forest resources worldwide on a continuing basis". Assessments have since been carried out at approximately ten-year intervals. Mandate and endorsement is given by the Committee on Forestry (COFO), which is the biannual meeting of FAO member countries to address and guide FAO's Forestry Programme. The latest assessment (FRA 2000) was also endorsed by the Intergovernmental Panel of Forests (IPF).
Global Biodiversity Assessment (GBA) 1993 – 1995	The Global Biodiversity Assessment project originated in July 1992 when the GEF Technical and Scientific Advisory Panel (STAP) recommended to UNEP that a global assessment of current knowledge in the broad field of biodiversity be carried out.
Global Biodiversity Outlook (GBO) 1995 -	The second meeting of the Conference of the Parties of the CBD in 1995 called for the preparation of a periodic report on biological diversity: the Global Biodiversity Outlook (GBO). The mandate to produce the second edition of the GBO report is highlighted in Decision 25 of the sixth meeting of the Conference of Parties. Specifically, the decision welcomed the publication of the Global Biodiversity Outlook report and decided that: By *decision VI/25*, the Conference of the Parties decided that the second edition of the *Global Biodiversity Outlook* should be prepared for publication in 2004, drawing upon information contained in the second national reports, the thematic reports on the items for in-depth consideration at its sixth and seventh meetings, and on the review of progress in the implementation of the Strategic Plan to be undertaken in 2003.
Global Environment Outlook (GEO) 1995 -	Monitoring and assessment of the global environment is one of the core mandates of UNEP as the lead environmental organization in the UN system. The mandate was elaborated in the 1997 Nairobi Declaration of the UNEP Governing Council and affirmed by the UN General Assembly in resolution A/RES/S-19/2. The mandate for GEO goes back to Decision 18/27 C of the UNEP Governing Council in 1995, requesting a new, integrated, forward looking, and regionally differentiated assessment on the state and direction of the global environment. A second GEO report was requested in GC Decision 19/3 and a third in GC Decision 20/1.
Global International Waters Assessment (GIWA) 1998 – 2004	The urgent need for an assessment of causes of environmental degradation of water areas was highlighted by the UN General Assembly Special Session on Environment and Development in 1997, where commitments were made regarding the work of the Commission on Sustainable Development (UNCSD) on freshwater in 1998 and oceans and seas in 1999. It was conceived and designed in response to STAP and GEF Council needs for guidance regarding priorities in the international waters portfolio area, and approved as a GEF project.

Intergovernmental Panel on Climate 1988 -	Recognizing the problem of potential global climate change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The IPCC completed its First Assessment Report in 1990. The Report played an important role in establishing the Intergovernmental Negotiating Committee for a UN Framework Convention on Climate Change by the UN General Assembly. The UN Framework Convention on Climate Change (UNFCCC) was adopted in 1992 and entered into force in 1994. It provides the overall policy framework for addressing the climate change issue. The IPCC has continued to provide scientific, technical and socio-economic advice to the world community, and in particular to the Parties to the UNFCCC through its periodic assessment reports on the state of knowledge of causes of climate change, its potential environmental and socio-economic impacts and options for addressing it. Even if the role of the IPCC is only vaguely referred to in the UNFCCC, it has over the years been firmly established as an assessment mechanism serving the SBSTA and the COP of the convention.
Land Degradation Assessment in Drylands (LADA) Preparatory Phase	LADA responds to the need to strengthen support to land degradation assessment at international and national levels. It also responds to the needs of the joint work program between the Convention of Biodiversity (CBD) and the Convention to Combat Desertification (CCD) on Dry and Sub-humid Lands and was fully endorsed by the fourth session of the Conference of the Parties (COP4) of the CCD in Bonn, Germany on 11-22 December 2000 in its Decision # 18.
Millennium Ecosystem Assessment (MA) 2001 – 2005	The UN Secretary-General launched the assessment in 2001. The initial demand for the Millennium Assessment came from a Steering Committee comprised of UNEP, FAO, UNDP, UNESCO, CBD, CCD, World Bank, World Council for Science (ICSU), Consultative Group on International Agricultural Research (CGIAR), World Business Council on Sustainable Development (WBCSD), World Resources Institute (WRI), World Conservation Union (IUCN), and the Global Environment Facility (GEF). After one year of consultation with the potential users of the assessment, this Committee recommended in 1999 that the MA be established. The Conference of Parties of the CBD and CCD and the Standing Committee of the Convention on Wetlands (Ramsar), and their scientific advisory bodies have since welcomed the MA and called upon it to undertake activities to meet some of their assessment needs.
Ozone Assessment 1981 -	The international stratospheric ozone assessment process originated in 1981 with a scientific assessment of the state of the ozone layer which helped pave the way for the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer. In 1987 an international assessment process with an expanded scope was formally authorized by governments through the Montreal Protocol. The current Ozone Assessment is mandated by the 6th article of the Montreal Protocol, which calls for a periodic assessment, beginning in 1990, of the control measures for various ozone depleting substances.
World Resources Report (WRR) 1986 –	A collaborative report produced through mutual agreement by four partners, World Resources Institute (WRI), UNDP, the World Bank and UNEP.
World Water Assessment Programme	At the urging of the Commission on Sustainable Development and with the strong endorsement by the Ministerial Conference at The Hague in March 2000, the UN Administrative Committee on Coordination Subcommittee on Water Resources (UN-ACC/SCWR) initiated a collective UN system-wide continuing assessment process, the World Water

(WWAP) 2001 –	Assessment Programme (WWAP).
	Scope
Forest Resource Assessment (FRA)	The FRA has a global, regional, and national scope that is thematic in nature and looks particularly at forests, other wooded lands and trees outside of forests. The report assesses the driving forces of pressures and change in the resource, including the uses of forest resources at local, regional and global levels. The FRA also examines the pressures on forests, such as fires, human population growth, and agriculture.
Global Biodiversity Assessment (GBA)	The GBA is an independent, critical peer-reviewed, scientific analysis of all the current issues, theories and views regarding biodiversity, viewed from a global perspective. It was, at the time, the most comprehensive analysis of the science of biological diversity ever attempted, focusing on assessing the scientific understanding of biodiversity's various components – ecosystems, species, and genes – and on identifying gaps in the knowledge base that should be targeted for future research. Specific sections of the report include the characterization of biodiversity, the magnitude and distribution of biodiversity, basic principles of the functioning of biodiversity and ecosystems, human influences on biodiversity, and economic values of biodiversity.
Global Biodiversity Outlook (GBO)	The GBO is the first comprehensive attempt to assess the status of biodiversity and the state of implementation of the CBD at the national, regional and international levels. It examines and provides a summary of the status and trends of biological diversity, as well as trends in the implementation of the objectives of the CBD on the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources at both global and regional levels. The summary of implementation of the CBD at the national level is provided on the basis of information contained in national and thematic reports and other relevant national level assessments.
Global Environment Outlook (GEO)	GEO is a comprehensive State of the Environment report with a broad environmental scope that is global, regional and subregional. The assessment focuses on the environmental components of sustainable development based on the following thematic breakdown: socio-economic background, land, forests, biodiversity, freshwater, coastal and marine areas, atmosphere, urban areas, and disasters. Key issues are examined by theme and region, and the report also provides a global overview. The assessment also contains a forward-looking "outlook" component.
Global International Waters Assessment (GIWA)	GIWA has a thematic global and regional scope and looks specifically at international (transboundary) waters comprising marine and freshwater areas, both ground water and surface water. It aims to produce a comprehensive and integrated global assessment of international waters, the ecological status of and the causes of environmental problems in 66 transboundary water areas in the world, and focus on the key issues and problems facing the aquatic environment in transboundary waters. The report identifies priorities for action for water-related environmental issues in the subregions, and recommends needed changes. GIWA also advocates methodologies for assessments, specifically protocols for the conduct of Causal Chain Analyses and Transboundary Diagnostic Analyses.

Intergovernmental Panel on Climate Change (IPCC)	The role of the IPCC is to assess the state of the climate system, including the influence of human activities, the impact of climate change on human health, socio-economic sectors and ecological systems, and policies and technologies to adapt to climate change and to mitigate greenhouse gas emissions. The scope of the assessment is therefore thematic, and takes place at the global, regional and subregional levels.
Land Degradation Assessment in Drylands (LADA)	The Land Degradation Assessment in Drylands (LADA) will generate up-to-date ecological, social, and economic and technical information, including a combination of traditional knowledge and modern science, to guide integrated and cross-sectoral planning and management in drylands. LADA will develop and implement strategies, tools and methods to assess and quantify the nature, extent, severity and impacts of land degradation on ecosystems, watersheds and river basins, and carbon storage in drylands at a range of spatial and temporal scales. It will also build national, regional and global assessment capacities to enable the design and planning of interventions to mitigate land degradation and establish sustainable land use and management practices. It will produce - with country participation - a scientifically valid and objective standardized methodological framework for the assessment and monitoring of land degradation causes at global and national levels, including identification of key indicators of the causes of land degradation.
Millennium Ecosystem Assessment (MA)	The scope of the MA is ecosystem services and the links between ecosystems services and human well-being. It will assess ecosystem condition, plausible futures and response measures at the global level, and pilot a series of assessments at the regional, national and community level in order to provide the types of information needed by a wide range of users. All major ecosystem types will be covered, as well as the important services provided by those systems for people. Other topics to be assessed include the vulnerability of socio-economic and natural systems at multiple scales under multiple pressures, as well as the availability and quality of data for integrated ecosystem assessments at the global scale, and at the scale of the various sub-global components of the MA. The report will also identify global hotspots of change (areas of rapid land cover and land use change), and gaps in knowledge relating to ecosystem assessment.
Ozone Assessment	The Ozone Assessment has a global, thematic scope. The assessment is quite broad and explores on a range of issues including the natural processes and human activities that affect stratospheric ozone, the impacts of ozone depletion on human health and ecological systems, and technologies that can be used to reduce or eliminate the use of ozone-depleting chemicals. The Parties to the Montreal Protocol are also able to request the panels to address specific issues.
World Resources Report (WRR)	Overall, WRR has a broad global and regional environmental scope, with more specific themes that change with every volume. Using data tables and explanatory text, the report provides an overview of several current global environmental trends including, biodiversity and protected areas, forests and grasslands, coastal, marine and inland waters, agriculture and food, freshwater, atmosphere and climate, and energy and resource use.
World Water Assessment Programme (WWAP)	WWAP specifically examines the world's freshwater resources at global, regional, and basin levels. The report assesses a wide range of variables related to the state of freshwater resources and their management, and recommends methodologies for carrying out assessments based on river basins and aquifers
	Periodicity

Forest Resource Assessment (FRA)	FRA is a series, with reports produced every 10 years, however it now plans to change to 5-year intervals. FRA 2000 came out in 2001. The next report will be FRA 2005.
Global Biodiversity Assessment (GBA)	GBA began in 1993 and the report was published in 1995.
Global Biodiversity Outlook (GBO)	First volume was published in November 2001. The 6th meeting of the Conference of the Parties (2002) decided that the second edition should be ready for publication in 2004
Global Environment Outlook (GEO)	Biennial global state of the environment report series. GEO-1 was published in 1997; Geo-2000 in 1999 and GEO-3 in 2002.
Global International Waters Assessment (GIWA)	GIWA began in 1999 and the final report was originally due in 2002. Recently the Steering Group has agreed to extend GIWA until June 2004, so the comprehensive assessment will come out at a later date. Currently there exists a series of unedited draft reports, and the priority at this time is to complete between 5 and 8 sub-regional comprehensive scaling/scoping reports to be ready between March and April 2003.
Intergovernmental Panel on Climate Change (IPCC)	The IPCC produces a series of assessment reports at approximately five-year intervals. Its First Assessment Report was completed in 1990, its Second in 1995, and its Third in 2001.
Land Degradation Assessment in Drylands (LADA)	In development from 2001 under a GEF-financed PDF-B project. PDF-B duration is 24 months beginning in December 2001. It is anticipated that the main project duration will be 4 years beginning in December 2003.
Millennium Ecosystem Assessment (MA)	MA began in 2001; final report is due in 2005.
Ozone Assessment	A standing decision requires that all panels update the Parties every year in a small report, with a comprehensive assessment published and distributed every four years as part of a series. Altogether there have been eight scientific assessments prepared under the international auspices of the World Meteorological Organization (WMO) and/or UNEP, with three comprehensive reports published in 1991, 1994 and 1998.
World Resources Report (WRR)	Biennial report series. So far 9 volumes have been published in the series, from WRR 1986 to WRR 2000-2001. WRR 2002-2004 is due in early 2003.
World Water Assessment Programme (WWAP)	WWAP began in 2001 and the first report is due in 2003.

	Working Modalities of the Assessment Process
Forest Resource Assessment (FRA)	The FRA is organized and produced by the **Forestry Department of the UN Food and Agriculture Organisation** in collaboration with **international partners and countries**. The assessments are mainly made from a collection of harmonized and quality-controlled national information sets. The agenda, major issues and ways of compiling information are developed through formal expert consultations. A **global advisory group** provides scientific guidance at the global level. **Regional teams of specialists** provide advice on the regional level. **Policymakers** are provided with an

	opportunity to review the assessment – all countries review and validate results through a formal procedure. Overall findings are reviewed by **formal expert consultations**. **Non-scientists** are also involved in the process. **National correspondents and professionals** working for their national agencies contribute to the majority of data.
Global Biodiversity Assessment (GBA)	This independent and peer-reviewed assessment is the work of **over 1 100 scientists and experts** from all parts of the world. The process of producing the GBA was lead by a **Chair of the Assessment**, **Executive Editor**, a **Task Manager** in UNEP supported by four **Honorary Advisers**, and a **Steering Group**, and followed a procedure similar to that used in IPCC and the Ozone Assessment. The work was organized into **thirteen teams of experts** who worked with some **300 authors** from over 50 countries who contributed to the report. In addition **several hundred scientists** from more than 80 countries and covering many different disciplines in the biological, economic and social sciences peer-reviewed various parts of the text. Although the GBA has had no formal intergovernmental component or direct links to the CBD or other intergovernmental processes, governments were continuously kept informed about the process, and governments were asked to nominate peer reviewers.
Global Biodiversity Outlook (GBO)	The GBO is not a new assessment of the status and trends of global biodiversity, but draws on existing assessments in order to illustrate the urgency of the issues relating to the loss of biodiversity, and how the Convention - through implementation by Parties of its thematic and cross-cutting programmes of work and through cooperation with other bodies - seeks to address these issues, thereby providing a basis for sustainable development in all countries. The **Executive Secretary** constituted an **advisory group** to help guide the process of developing the report and to review drafts.
Global Environment Outlook (GEO)	GEO reports are produced through a participatory, consultative Integrated Environmental Assessment process especially established by UNEP for this purpose. A coordinated global network of **collaborating centres (CCs)** forms the core of the process. **Regional centres** are now responsible for almost all the regional inputs, combining top-down integrated assessment with bottom-up environmental reporting. **Other institutions** provide specialized expertise on cross-cutting or thematic issues. **Working groups** provide advice and support to the GEO process, particularly on integrated assessment methodologies and process planning. **Other United Nations agencies** contribute to the GEO process, mainly by providing substantive data and information on the many environmental and related issues that fall under their individual mandates. They also participate in the review process. Other environmental assessments are also very important as source material. The process is coordinated globally from UNEP's headquarters in Nairobi and at the regional level from outposted regional offices. Drafts are reviewed internally and externally by **scientists** and **policy experts**, with **governments**, **NGOs** and **other stakeholders** being invited to provide feedback in regional consultations. Capacity building in Integrated Environmental Assessment is an important component of the GEO process, provided to institutions from developing regions through learning by doing and more formal training. Another important output of the GEO process is the GEO Data Portal, which is the authoritative source for data sets used by UNEP in the GEO reports, as well as other environmental assessments.

Global International Waters Assessment (GIWA)	The GIWA is a highly scientific assessment that is administered by a **Secretariat**, which is based at the University of Kalmar, Sweden. It uses several frameworks for analysis, including Descriptive Analysis, Causal Chain Analysis and Policy Option Analysis. **The Core Team** is supported by a **Steering Group** and the Assessment Protocol is divided into three main stages that include Scaling/Scoping, a Detailed Impact Assessment, and a Causal Chain Analysis. The initial phase of the assessment included the establishment of the GIWA Core Team, as well as a global network of **collaborating institutions/ organizations** and **individuals** in **governmental** and **non-governmental organizations** within the **public** and **private sectors**, as well as in **the scientific community**. During this first phase, the GIWA Assessment Protocol was also developed, including an approved methodology for making causal chain analyses. In the making of the Global International Waters Assessment, full use will be made of existing assessments and all other available information about the 66 subregions. Only data required for a step-by-step, iterative analysis of transboundary water-related problems and their causes will be gathered. The findings of past water-related programmes will be incorporated in GIWA, and the assessment work will be carried out in close partnership with ongoing programmes to maximize the overall benefit.
Intergovernmental Panel on Climate Chante (IPCC)	IPCC has **three working groups** and a **task force** and follows an agreed set of principles and procedures for selection of experts, conducting assessments and adoption of reports. Working Group I assesses the scientific aspects of the climate system and climate change. Working Group II addresses the vulnerability of socio-economic and natural systems to climate change, negative and positive consequences of climate change, and options for adapting to it. Working Group III assesses options for limiting greenhouse gas emissions and otherwise mitigating climate change. The Task Force on National Greenhouse Gas Inventories is responsible for the IPCC National Greenhouse Gas Inventories Programme. **Over 2000 experts** from nearly 100 countries were involved in the preparation and peer-review of each of the Second and Third Assessment Reports. A **30-member Bureau of nationally/regionally-nominated government representatives** oversees the management of the assessment process, but all major decisions are made by the IPCC Panel (all governments) in plenary. In addition to three comprehensive assessments, a number of Special Reports on specific issues have been prepared at the request of the governments. For example, governments requested IPCC prepare a report on Land-Use, Land-Use Change and Forestry in order to provide the scientific and technical basis for implementing certain Articles within the Protocol. The Assessment Reports and Special Reports undergo **expert** and **expert/ government review**, and a final government review of the summaries for Policymakers before approval by Plenary. **Governments** approve the scope of the assessments, nominate lead **authors** and **peer-reviewers**, are involved in the peer-review process and approve the Summary for Policymakers.
Land Degradation Assessment in Drylands (LADA)	As the Implementing agency of **GEF** and the assessment, **UNEP** will play a key role in steering and implementing this project. The full technical, scientific and operational co-ordination of the project development (PDF-B) stage of the LADA project will be done by **FAO** as the executing agency, with direct support of its **technical divisions** and **decentralized offices** and its **Inter-departmental Working Group on Desertification**. The overall implementation of PDF-B activities will be monitored through, and when necessary cleared by, the **International Technical Steering Committee (ITSC)**. LADA will generate new data, knowledge and processes of land degradation and its repercussions.

	During the PDF-B, the project will develop and test novel integrated approaches and methods for assessing land degradation in dry areas, that link biophysical and technical with socio-economic (especially policy and institutional) factors, with scientific reliability and robust application to different kinds of land degradation at different scales. It will generate methodologies, information and data for the implementation of the full LADA project. This will include establishing an International Technical Steering Committee (ITSC), reviews and synthesis, thematic studies, development, testing, and revision of integrated assessment approaches and methods, capacity and network development, pilot studies, implementation-related strategies, project development, and others. Some of LADA methods include: expert opinion, remote sensing, field monitoring, productivity changes, sample studies at farmer level, based on field criteria and the expert opinion of land users, modelling.
Millennium Ecosystem Assessment (MA)	The MA will not be creating its own data, but will use existing data to consider the current condition of ecosystems and their capacity to provide goods and services. It follows a procedure similar to that of IPCC. The **Condition and Trends Working Group** will assess current condition of ecosystems and the services provided by those ecosystems. The **Scenarios Working Group** will consider plausible futures of ecosystem services and implications for human well-being in the form of scenarios, as well as response options available to affect these futures. The assessment will use an analytical framework that is a modified DPSIR, which will be applied at multiple scales through the assessment of current conditions (and recent trends), scenarios and response options. The MA **is non-governmental** and is administered by a **secretariat** that is provided by **dispersed support organizations** (including **ICLARM, Malaysia; UNEP-WCMC, UK; Institute of Economic Growth, India; WRI, USA; Meridian Institute, USA; SCOPE, France; UNEP, Kenya; CIMMYT, Mexico**). Its **Assessment Panel** is composed of **13 leading natural and social scientists**, and **representatives of each of the stakeholder groups** comprise a **40+ member Board of Directors**, which approved the scope of the assessment, the geographic balance of the authors and which will approve the Summaries for Policymakers. All MA documents will undergo **governmental** and **expert review**. MA Board and MA Authors include **individuals** and **organizations** from the **private sector**, **indigenous peoples**, **civil society**, **policymakers**, **decision-makers**.
Ozone Assessment	The Ozone Assessment is primarily research-based, with **scientists** conducting laboratory, field, and industrial research. It is a highly scientific process that is overseen **by three panels (the Scientific Assessment Panel (SAP), Environmental Effects Assessment Panel (EEAP), and Technology and Economic Assessment Panel (TEAP))** whose Co-Chairs are selected by the MOP. The panels are made up of **experts** who are chosen solely on the basis of their professional competence, and come into this process as individuals rather than as affiliates of a specific organization. There is a balance of scientists from **developing** and **developed countries**, in order to insure truly "global" documents, reflecting the thinking of the international scientific community. The panels are purely technical, and although the assessments provide policy options, they are non-prescriptive and policy decisions are left to the governments. **UNEP's Ozone Secretariat** receives reports from the panels (reports that are also presented to the MOP) and coordinates the assessment, but does not interfere with the process. The **governments** themselves suggest key issues to be assessed, but are not involved in the preparation or peer-review process. These assessments have served as the scientific and technical basis of national and international policy formation, including the Montreal Protocol and its subsequent adjustments and amendments.

World Resources Report (WRR)	WRR is produced and managed by **WRI**. The other partners, **UNDP**, **UNEP**, and the **World Bank** are involved at the planning stage and participate in the review process, and may provide more substantive inputs. Draft chapters of the report are mainly prepared in house by WRI and then undergo extensive **peer review and revision**. Specific sections of the assessment also involve **non-scientists**, including **economists**, **social scientists**, **activists**, and **policy specialists**. WRR has a panel of Senior Advisers that acts as a **Scientific Advisory Group**.
World Water Assessment Programme (WWAP)	The analytic framework for WWAP involves assessments of human water stewardship, the state of the global water system, and critical problems. The programme has three main components, the first of which involves the preparation of the periodic report and resultant advice, when requested, to governments. The report will include: a thematic component (in the first edition this will focus on developments in water management since the Rio Earth Summit and subsequent editions will include cross cutting themes such as "water and poverty", "water in cities" among other possible themes); a methodological component involving analyses and the production of indicators of water-related stress; and a case study component, which will develop an integrated, cross-sectoral methodology and support its progressive dissemination in countries and river basins worldwide. The second major component is a Water Information Network, comprising a global-scale meta-database; knowledge management systems to facilitate the assessment and dissemination of information; and an online library, website and newsletter. The network will allow communication with **governments** and **water related non-government groups**, facilitate capacity building and raise awareness about water. The third component involves capacity-building, the prime purpose of which is to promote the ability of governments to conduct their own assessments through human resource development, education and training, provision of methodologies, institution and infrastructure development and development of data and information networks.

	Costs of the Assessment and Funders
Forest Resource Assessment (FRA)	The assessment is funded out of the FAO regular budget, multilateral trust funds and in-kind contributions from countries.
Global Biodiversity Assessment (GBA)	The GBA is funded by the Global Environment Facility (GEF) and by UNEP. The total budget for the project was approximately US$ 3 300 000.
Global Biodiversity Outlook (GBO)	The first edition of the GBO was funded from the regular budget of the Secretariat of the Biodiversity Convention. The total budget for the publication was approximately US$ 140 000. Additional support came from the British Government specifically to cover the costs of a meeting of the Advisory Group.
Global Environment Outlook (GEO)	GEO is primarily funded by UNEP's Environment fund. Additional funding has been received from time to time in support of specific elements of the GEO process (for example, capacity building and developing region's

	participation) from national governments, UN Foundation, and in-kind contributions by Collaborating Centres. The cost of one comprehensive GEO report is approximately US$ 5.500 000 (including capacity building).
Global International Waters Assessment (GIWA)	The GIWA is funded by the GEF (50%), Government of Finland, City of Kalmar, University of Kalmar, NOAA (in-kind), SIDA, the Norwegian Government and UNEP. The cost of the project is approximately US$ 27 000 000.
Intergovernmental Panel on Climate Change (IPCC)	IPCC is funded by UNEP, WMO, UNFCCC and voluntary contributions to the IPCC Trust Fund. The cost of the IPCC is approximately US$ 5 000 000 per year.
Land Degradation Assessment in Drylands (LADA)	LADA is funded by UNEP/GEF and the Global Mechanism of the UNCCD (Ms A. Tengberg, DGEF/UNEP) and receives in kind contributions from the UNCCD Secretariat. The estimated total cost of the PDF-B is US$ 1 375 000 and the estimated total cost of full project US$ 9 000 000.
Millennium Ecosystem Assessment (MA)	The MA is funded by the GEF, United Nations Foundation, David and Lucille Packard Foundation, and The World Bank. Additional support is provided by CGIAR, FAO, Government of Norway, Rockefeller Foundation, UNDP, UNEP, NASA, the Government of China, the European Commission, and others. The core funding of the MA is approximately US$ 21 000 000.
Ozone Assessment	The actual publishing and distribution of the report is funded by the Secretariat for the Vienna Convention for the Protection of the Ozone Layer and for the Montreal Protocol on Substances that Deplete the Ozone Layer (the Ozone Secretariat), which allocates a budget of US$ 400 000 every four years for this purpose. The research for the report is funded by in-kind and monetary contributions from various industries, individuals and organizations including NOAA, NASA, WMO and the European Commission.
World Resources Report (WRR)	WRR is funded by its four partners UNDP, UNEP, World Bank and WRI (with some foundation and bilateral support). The cost for WWR 2000-2001 was approximately US$ 2 500 000.
World Water Assessment Programme (WWAP)	WWAP is funded and administered by a Secretariat, which is located at UNESCO HQs. The programme was taken over by UNESCO with a large amount of funding provided by the Japanese Government. Further small contributions for work writing the broader WWAP umbrella have been provided by DFID (UK), as well as the Dutch. In kind contributions have been provided by the UN agencies themselves. Therefore WWAP is currently funded by donors, in terms of cash and project funding, with in kind contributions from UN agencies. The cost for WWAP is approximately US$ 5 000 000 for three years.

Appendix 2
Draft Principles and Procedures governing assessments under IPEC

(Based on the IPCC Principles and Procedures)

Purpose of the assessments

1. Assessments under the Intergovernmental Panel on Global Environmental Change shall concentrate its activities on the task of a critical review of the literature pertaining to the scope of the assessment as defined by the Panel.
2. The role of the assessments will be to assess in a comprehensive, objective, open and transparent fashion the scientific, technical and socio-economic literature relevant to global environmental change and its consequences for social and economic development. The assessment report should be neutral with respect to policy, and deal objectively with scientific, technical and socio-economic factors relevant to the application of certain policies.
3. Peer-review by experts both in and outside of government shall be an essential part of the assessment process.

Organization of the assessment process

4. Major decisions on assessment will be taken in plenary meetings of the Panel. The Bureau of the Panel will in cooperation with the Executive Director of UNEP be responsible for oversight management of the assessment process.
5. In taking decisions, and approving, adopting and accepting assessment reports, the Panel shall use all best endeavors to reach consensus. If consensus is judged by the relevant body not possible: (a) for decisions on procedural issues, these shall be decided according with the rules of proceedures; (b) for approval, adoption and acceptance of report, differing views shall be explained and, upon request, recorded. Differing views on a matter of a scientific, technical or socio-economic document shall, as appropriate in the context, be represented in the document concerned. Differing views on matters of policy shall, as appropriate in the context, be recorded in the report of the session.

Expert Participation

6. Experts from Member countries or international, intergovernmental or non-governmental entities may be invited in their own right (personal capacity) to contribute to the preparation and peer-review of the Assessment. The Bureau will make the initial selection of authors, based on nominations from all stakeholder groups, and finally approved by the Panel. Governments shall be informed in advance of invitations extended to experts with citizenship in their countries and shall be allowed to nominate additional experts.

Definitions

"Acceptance" signifies that the material has not been subjected to line-by-line discussion and agreement, but represents a comprehensive, objective and balanced view of the subject matter.
"Adoption" is a process of endorsement section by section (i.e., not line-by-line).
"Approval" signifies that the material has been subjected to line-by-line discussion and agreement.
"Assessment report" is the published material of the full scientific and technical analysis.
"Members of the Panel" are countries who are Members of the Panel.
"Session of the Bureau" refers to meetings of the elected members of the Panel Bureau who may be accompanied by a representative of their government.
"Plenary Session" refers to plenary meetings of the Panel.

Review Process

7. The review process should take place in three stages: expert review of the Report, government/expert review, and government review of final document summary. Expert review should be approximately eight weeks, but not less than six weeks. Government and government/expert review should not be less than eight weeks. All written expert and government review comments will be made available to reviewers on request during the review process and will be retained in an open archive by the Executive Director of UNEP on completion of assessment reports for a period of at least five years.

8. The purpose of the review process is to ensure that the assessment reports presents a comprehensive, objective and balanced view. The content of the authored chapters is the responsibility of the lead authors. Only grammatical and or minor editorial changes can be made prior to publication. To ensure proper preparation and review, the following steps should be taken:

a) Compilation of lists of Coordinating Lead Authors, Lead Authors, Contributing Authors, Expert Reviewers, Review Editors and Governmental Focal Points.
b) Selection of Lead Authors.
c) Preparation of draft Report.
d) Review
i) First draft by experts
ii) Second draft by governments and experts
e) Preparation of final draft Report.
f) Acceptance of Report at a session of the Plenary.

Compilation of Author and Editor Lists

9. At the request of the Bureau through the Executive Director of UNEP, governments and participating organizations should identify appropriate experts for each Chapter in the Report to act as Coordinating Lead Authors, Lead Authors, Lead Authors, Contributing Authors, expert reviewers or Review Editors. To facilitate the identification of experts and later review by governments, governments should also designate their respective Focal Points. Bureau members should contribute where necessary to ensure balanced representation from developed countries, developing countries, and countries with economies in transition. These recommendations shall be assembled into lists available to all Members and maintained by the Executive Director of UNEP. The tasks and responsibilities of Coordinating Lead Authors, Lead Authors, Lead Authors, Contributing Authors, expert reviewers, Review Editors and government Focal Points are outlined in Annex 1.

Selection of Authors

10. Coordinating Lead Authors and Lead Authors shall be selected by the Bureau from those experts cited in the lists provided to the Bureau by governments and participating organizations. The composition of the group shall reflect the need to aim for a range of views, expertise and geographical representation. The Coordinating Lead Authors and Lead Authors selected by Bureau may enlist other experts as Contributing Authors to assist in their work.

11. At the earliest opportunity, the Executive Director of UNEP shall inform all Members and participating organizations the Coordinating Lead Authors and Lead Authors responsible for each chapter.

Preparation of Draft Report

12. CLAs and LAs should undertake preparation of the first draft of the Report. Experts who wish to contribute material for consideration in the first draft should submit it directly to the LAs. Contributions should be supported as far as possible with references from the peer-reviewed and internationally available literature, and with copies of any unpublished material cited. Clear indications of how to access the latter should be included.

13. LAs will work based on these contributions, the peer-reviewed and internationally available literature, including selected non-peer review manuscripts that can be made available for review according to Annex 2. Material that is not published may only be included if its inclusion is fully justified in the context of the Assessment process.

Review

14. Three general principles should govern the review process:

a) the best possible scientific and technical advice should be included so that the Report represents the latest scientific, technical and social findings and are as comprehensive as possible;

b) circulation should aim to involve as many experts as possible, with particular attention to independent experts (not involved in the preparation of the chapter) from developed countries, developing countries, and countries with economies in transition; and
c) the review should be objective, open and transparent.

15. First draft: The first draft should be circulated to all expert reviewers selected by the Bureau, as well as those on the lists submitted by governments and other participating organizations, noting the need to aim for a range of views, expertise, and geographical representation. It should be sent to each Member Focal Point, along with a list of those to whom the Report was sent for review in that particular country. CLAs, in consultation with the Review Editors and the Technical Support Unit, are encouraged to supplement the draft revisions process by organizing a wider meeting with principal CAs and expert reviewers, if time and funding permit, in order to pay special attention to particular points where major differences exist.

16. Second draft: The revised draft should be circulated through the designated Focal Points and to all CLAs, LAs, CAs and expert reviewers. Non-government expert reviewers should provide comments to the appropriate LAs with a copy to their government Focal Point. Governments should send one integrated set of comments.

Preparation of final draft
17. The CLAs and LAs in consultation with the Review Editors should prepare the final draft Report. Government and expert comments should be considered in this final draft. If necessary, and if time and finances permit, a wider meeting with principal Contributing Authors and expert and government reviewers shall be encouraged in order to pay special attention to particular points of assessment or areas of major scientific difference. It is important that the Report describe different (possibly controversial) scientific, technical, and socio-economic views on a subject, particularly if they are relevant to a policy debate. The final draft should credit all Coordinating Lead Authors, Lead Authors, Contributing Authors, reviewers and Review Editors by name and affiliation at the end of the Report text.

Approval and acceptance of Summary for Policymakers
18. Summary sections of the Report approved and accepted by the Panel will principally comprise the Summary for Policymakers. It should be subject to simultaneous review by both experts and governments and to a final line-by-line approval by a session of the Plenary. The SPM should be prepared concurrently with the main Report.

19. Approval of the Summary for Policymakers signifies that it is consistent with the factual material contained in the full Report. CLAs may be asked to provide technical assistance in ensuring the two documents are consistent. The Summary for Policy Makers should be formally and prominently described as: “A Report of the UNEP Intergovernmental Panel on Global Environmental Change.”

Annex I
Tasks and responsibilities for Lead Authors, Coordinating Lead Authors, Contributing Authors, Expert Reviewers and Review Editors of Assessment Reports and Government Focal Points

Lead Authors (LAs)

Function: Responsible for the production of designated sections addressing items on the work program on the basis of the best scientific and technical information available.

Comment: LAs will typically work as small groups that have the responsibility for ensuring that the various components of their sections are brought together on time, are of uniformly high quality, and conform to any overall standards of style set for the document as a whole.

The task of LAs is a demanding one and in recognition of this, the names of LAs will appear prominently in the final Report. During the final stages of Report preparation, when the workload is often particularly heavy

and LAs are heavily dependent upon each other to read and edit material, and to agree to changes promptly, it is essential that the work should be accorded the highest priority.

The essence of the LAs' task is synthesis of material drawn from available literature. LAs, in conjunction with Review Editors, are also required to take into account expert and government review comments. LAs may not necessarily write original text themselves. But they must have the proven ability to develop text that is scientifically and technically sound and that faithfully represents, to he extent that this is possible, contributions by a wide variety of experts. The ability to complete work by deadlines is critical.

LAs are required to record in the Report views that cannot be reconciled with a consensus view but that are nonetheless scientifically or technically valid. LAs may convene meetings with Contributing Authors, as appropriate, in the preparations of their sections or to discuss expert or government review comments. The names of all LAs will be acknowledged in the Report.

Coordinating Lead Authors (CLAs)

Function: Overall responsibility for a chapter.

Comment: CLAs will function as LAs and ensure that the Chapter of the Report for which they are responsible is completed to a high standard in a timely manner and in conformance with style requirements. CLAs will play a leading role in ensuring that any cross-cutting scientific or technical issues that may involve several chapter so a report are addressed in a complete and coherent manner and reflect the latest information available. The skills and resources required of CLAs are those required of LAs with additional organizational skills. The names of CLAs will be acknowledged in the Report.

Contributing Authors (CAs)

Function: Prepare technical information in the form of text, graphs, or data for assimilation by LAs.

Comment: Input from wide range of contributors will be key to the success of assessment reports. Contributions should be supported with references from the peer-reviewed and internationally available literature, and with copies if any unpublished material cited; clear indications as to how to access the latter should be included.

Expert Reviewers

Function: To comment on the accuracy and completeness of the scientific and technical content and the overall balance.

Comment: Expert reviewers will comment on the according to their own knowledge and experience. They may be nominated by Governments, regional, national and international organizations, LAs and CAs.

Review Editors

Function: Will assist in identifying reviewers for expert review process., ensure that all substantive expert and government review comment are afforded appropriate consideration, advise lead authors on handle contentious/controversial issues and ensure genuine controversies are adequately reflected in the text of the Report.

Comment: One or two per Chapter. In order to carry out these tasks, Review Editors will need a broad understanding of the wider scientific and technical issues. Although responsibility for the final text remains with the LAs, Review Editors will need to ensure that where significant differences of opinion remain, such differences are described in an annex to the Report.

Government Focal Points

Function: To prepare a list of national experts as required to implement the work program, and to arrange the provision of integrated comments on the accuracy and completeness of the scientific and/or technical content and balance.

Comment: Government review will typically be carried out within and between a number of Departments and Ministries. For administrative convenience, each government and participating organization should designate one Focal Point for all activities of the Panel, provide full information on contact coordinates for this person to the Panel Secretariat and notify the Secretariat of any changes in this information. The Focal Point should liaise with Secretariat regarding the logistics of the review process.

Annex 2
Procedures for using non-published/non-peer-reviewed sources in the Assessment Reports

1. Responsibilities of Coordinating, Lead and Contributing Authors: Authors who wish to include information from a non-published/no-peer-reviewed source are requested to:

a) Critically assess any source. Each chapter team should review the quality and validity of the source.
b) Send one copy of each unpublished source to the CLAs, including the following information:
i) Title
ii) Author(s)
iii) Name of journal or other publication in which it appears, if applicable
iv) Information on the availability of underlying data to public
v) English-language executive summary or abstract, if source not written in English
vi) Names and contact information for 1-2 people who can be contacted for more information about the source.

2. Responsibilities of Review Editors: The Review Editors will ensure that these sources are selected and used in a consistent manner across the Report.

3. Responsibilities of the UNEP Secretariat: The Secretariat will store the complete sets of indexed, non-published sources and send copies to those reviewers who request them.

4. Treatment in Report: Non-peer-reviewed sources will be listed in the reference sections of the Report. They will be integrated with references to the peer-reviewed sources with notation stating how material can be accesses, and that material is not published.
