



JOINT INITIATIVE ON SCIENCE AND TECHNOLOGY

EXPERT PANEL ON ADAPTATION OF FORESTS TO CLIMATE CHANGE

TERMS OF REFERENCE

26 October 2007

1. Background and rationale

The Joint CPF Initiative on Science and Technology was launched in April 2007 as a new mechanism to support international forest-related processes through the assessment of available scientific information and production of reports on forest-related issues of high concern. The rationale and mission of the Joint Initiative as well as the related institutional and procedural arrangements are described in a Concept Note¹.

Consultations with policy makers regarding potential themes for reports by the Joint Initiative were held in April and July 2007 on the occasion of the 7th session of the United Nations Forum on Forests (UNFF) and the 12th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-12) of the Convention on Biological Diversity (CBD). In both consultations “adaptation of forests to climate change” was identified as an issue of high concern that should be taken up by the Joint Initiative.

A report on adaptation would fit particularly well under the overall theme “Forests in a Changing Environment” of the 8th session of the UNFF in April/May 2009, and could contribute significantly to the deliberations of the UNFF at this session. A report on adaptation could also make an important contribution to the work of the CBD on integrating climate change activities within the programmes of work of the Convention, and options for mutually supportive actions addressing climate change within the Rio Conventions (Recommendation XII/5).

Forests will also be a key item on the agenda of the Thirteenth session and Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change, to be held in December 2007 in Bali, Indonesia. On this occasion, IUFRO and other CPF Members will organize a “Forest Day” as a parallel event to the COP. This forest day will provide an opportunity to inform the delegates about the Joint Initiative and to discuss with them how the

¹ Approved by the Steering Committee at its second meeting held on 12 February 2007 in Nusa Dua, Bali, Indonesia.

report on adaptation of forests to climate change can best be fitted into the negotiations on a new global climate change governance regime post 2012.

2. Task

Taking into consideration the outcomes of the policy consultations held during UNFF-7 and CBD SBSTTA-12, the Steering Committee agreed to establish an Expert Panel on Adaptation. It shall be the task of the Expert Panel to carry out a comprehensive assessment of available scientific information about the adaptation of forests and the forest sector to climate change and to prepare a report for use by the UNFF at its eighth session, and also by the UNFCCC and CBD.

The assessment report shall present the state of information relevant to understanding the impacts of climate change on forest ecosystems and the forest sector, their vulnerability and their capacity to adapt. More specifically, the Expert Panel shall provide an assessment of current knowledge concerning:

- the interrelation between forest ecosystems and the services provided by them, and the climate;
- observed changes and responses in forest ecosystems to climate change;
- threats and likely future impacts of climate change on forest ecosystems and socio-economic impacts on the forest sector;
- adaptation practices, options, constraints and capacity;

When assessing such knowledge and preparing the report, the Expert Panel shall recognize the multiple spatial and temporal scales involved. Based on its assessment, the Expert Panel may also identify priorities for further research.

The assessment report shall be composed of (a) a comprehensive, peer-reviewed full report and (b) a summary for policy makers. The summary for policy makers provides a policy-relevant but policy-neutral summary of the report. The assessment report shall be prepared in accordance with the “proposed assessment process” outlined in the Concept Note².

The work of the Expert Panel will be based on existing results, information and knowledge. It shall not be the task of the Expert Panel to carry out research or to monitor climate or forest related data or other relevant parameters.

3. Basic concepts, key terms and definitions

Basic concepts, key terms and definitions relevant to the work of the Expert Panel can be found in Annex 1.

² A more detailed procedure for the preparation, review and approval of Assessment Reports may be prepared by the Steering Committee, if needed.

4. Composition

The Expert Panel consists of up to 30 scientists with recognized expertise in the fields related to adaptation of forests to climate change. The Expert Panel Members are selected by the Steering Committee of the Joint Initiative on Science and Technology in accordance with the agreed Selection Criteria and Process. The exact size of the Expert Panel will depend mainly on the specific topics to be covered in the Assessment Report on Adaptation. The first meeting of the Expert Panel on Adaptation might involve a smaller group of experts who may identify the need for involving additional experts.

5. Modalities of work¹

The panel shall operate on basis of these Terms of Reference and in accordance with the provisions included in the Concept Note. The Steering Committee provides general guidance to the Expert Panel and ensures that the assessment process and report of the Expert Panel conform to these Terms of Reference. The Terms of Reference may be revised by the Steering Committee if necessary.

The work of the Expert Panel is overseen by a Chair. The Panel Chair is responsible for coordinating the work of the Panel in carrying out the thematic assessment and preparing the assessment report, and for ensuring that all activities of the Panel as well as the expert review and the preparation of the summary for policy makers occur in an effective and timely manner. The Chair makes sure that the Lead Authors communicate closely with each other and periodically share drafted sections so that a coherent and consistent assessment report will be prepared. It is essential that the work programme of the Expert Panel allows enough time in its schedule for a full review by experts and for the acceptance of the report by the Steering Committee.

The Expert Panel members serve as Lead Authors of the assessment report. Depending on the draft outline of the report and his/her area of specialization, each Lead Author prepares specific sections of the assessment report. The Panel may enlist other experts as Contributing Authors to assist with their work. Contributing Authors are not members of the Expert Panel, but their authorship is clearly acknowledged in the assessment report.

The Expert Panel carries out its work by holding physically meetings and by using electronic communication. The proposed main activities and the related time schedule is described under item 7 below. The exact dates and mode of panel meetings shall be determined by the Chair, bearing in mind financial and in-kind resources available from governments and Steering Committee members for purposes of the assessment.

Operational and technical support will be provided by the IUFRO Secretariat in its role as the focal point of the Joint Initiative as well as, to the extent possible, by the Steering Committee Members.

6. Thematic frame, sources of information and validation

When preparing the report, the Expert Panel shall take into account the global institutional and policy frame described in Annex 2.

The Expert Panel shall consider the following sources of information:

- published, peer-reviewed scientific literature;
- IPCC Fourth Assessment Report and Working Group reports, in particular the report of Working Group II “Impacts, Adaptation and Vulnerability”; IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations, and other relevant publications prepared by the IPCC;
- Reports of the Millennium Ecosystem Assessment, in particular the Synthesis Reports (Overall Synthesis, Biodiversity, Desertification, Business and Industry, Wetlands and Water, Health);
- other sources of information, where appropriately documented, including sources of traditional knowledge;

Furthermore, the Expert Panel shall make best use of CPF Members as sources of information. Because it is apparent that materials relevant to the Report on Adaptation of Forests to Climate Change can also be found in sources that have not been published or peer-reviewed (e.g., industry journals, internal organisational publications, non-peer reviewed reports or working papers of research institutions, proceedings of workshops, traditional and indigenous knowledge, etc), a procedure shall be established by the Expert Panel for validation of such information³.

7. Expert review

The assessment report shall be subject to expert review. The purpose of the review is to ensure that the assessment report presents a comprehensive, objective and balanced view of the area covered by the report.

Expert Reviewers shall be selected by the Steering Committee, in consultation with the Chair of the Expert Panel, in accordance with the selection criteria that also apply to Expert Panel Members⁴. Furthermore, Expert Reviewers shall not be involved in the preparation of that particular section or chapter of the assessment report which they review.

Review comments shall be collected and evaluated by the Chair of the Expert Panel. The expert review period shall be decided by the Steering Committee in consultation with the Chair of the Expert Panel, but shall not be less than six weeks. All review comments shall be provided to the Chair in writing.

³ See e.g., Procedure for Using Non-Published/Non-Peer-Reviewed Sources in IPCC Reports; available at <http://www.ipcc.ch/about/procd.htm>

⁴ See document „Selection Criteria and Process“ approved by the Steering Committee.

8. Acceptance and approval

The reviewed full assessment report shall be accepted by the Steering Committee before publication. "Acceptance" signifies the view of the Steering Committee that the purpose of providing an assessment report that presents a comprehensive, objective and balanced view of the area covered has been achieved.

The summary for policy makers shall be prepared by communication experts. It shall be approved by the Expert Panel and subsequently accepted by the Steering Committee before publication. Approval of the summary for policy makers signifies that it is consistent with the factual material contained in the full assessment report.

9. Duration of work, main activities and suggested time schedule

The Expert Panel is established on a temporary basis. Its work should be initiated as soon as possible and completed on time for consideration of the UNFF at its eighth session.

Year 2007:

Timeframe	Activity	Task
October	Steering Committee Consultation	Selection of Expert Panel Chair
November	Consultations of Expert Panel Chair with SC Members and scientists	Recommendations on Steering Committee Members
November/December	Steering Committee Consultation or Meeting (e.g. back-to-back with Forest Day Bali)	Selection and approval of Expert Panel Members

Year 2008:

Timeframe	Activity	Task
January/February 2008	Expert Panel Meeting	Agree on conceptual framework for report; Identify types and sources of information; Prepare draft outline of report; Agree on detailed schedule and allocation of tasks.
February to April	Drafting, electronic consultations among Expert Panel Members	Preparation of first draft report
May	Expert Panel Meeting	Discussion of first draft report

June to July	Drafting, electronic consultations among Expert Panel Members	Preparation of revised draft report
25-28 August	FAO/IUFRO/SLU Conference on "Adaptation of Forests and Forest Management to Changing Climate with Emphasis on Forest Health"	Comments from participants on revised draft report
August/September	Expert Panel Meeting	Discussion of revised draft report
October to November	Expert review (electronic)	Provision of review comments on revised draft report by expert reviewers
November	Steering Committee Meeting / Consultation	Discussion of revised draft report and feedback to the Panel
November / December	Drafting, electronic consultations among Expert Panel Members	Preparation of final draft report
December	Drafting meeting	Preparation of summary for policy makers

Year 2009:

Timeframe	Activity	Task
January	Electronic consultations by the Expert Panel	Approval of summary for policy makers
January / February	Steering Committee Meeting / Consultation	Acceptance of report and summary for policy makers
February	Publication of report	Submission of report and summary for policy makers to UNFF, CBD, UNFCCC and other potential users

10. Compensation

In accordance with the Concept Note, travel costs and daily subsistence allowance shall be paid to Panel members attending an Expert Panel Meeting in accordance with UN rules and regulations. A financial compensation may be provided to the Chair of the Expert Panel.

ANNEX 1: BASIC CONCEPTS, KEY TERMS AND DEFINITIONS

1. Forests

Definitions for the term forest have been discussed in detail during the First and Second *Expert Consultations on Harmonizing Forest-related Definitions by Various Stakeholders*, organized by FAO, IPCC, IUFRO and other partners in 2002. As a result of these consultations three globally established forest definitions emerged:

UNFCCC, 2001: “Forest is a minimum area of land of 0.05-1.0 hectares with tree crown cover (or equivalent stocking level) of more than 10-30 per cent with trees having the potential to reach a minimum height of 2-5 metres at maturity in situ. A forest may consist either of closed forest formations, where trees of various storeys and undergrowth cover a high proportion of the ground, or open forest. Young natural stands and all plantations which have yet to reach a crown density of 10-30 per cent or tree height of 2-5 metres are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention such as harvesting or natural causes but which are expected to revert to forest.

UNEP/CBD, 2001: Forest is a land area of more than 0.5 ha, with a tree canopy cover of more than 10 percent, which is not primarily under agriculture or other specific non-forest land use. In the case of young forest or regions where tree growth is climatically suppressed, the trees should be capable of reaching a height of 5 m in situ, and of meeting the canopy cover requirement.

FAO, 2006: Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agriculture or urban use.

These three definitions have been analysed and compared schematically in the Forests and Climate Change Working Paper 5 “Definitional issues related to reducing emissions from deforestation in developing countries” published by FAO⁵. There are major differences between these globally applied forest definitions with regard to (i) differing quantitative thresholds for crown cover, height, and minimum area, and (ii) treatment of non-forest land uses and temporarily unstocked areas.

2. Climate change

Climate change in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of

⁵ Schoene, D. et al, 2007. Forests and Climate Change Working Paper 5. Definitional issues related to reducing emissions from deforestation in developing countries. Food and Agriculture Organization of the United Nations. Rome, 2007. Available online at <http://www.fao.org/docrep/009/j9345e/j9345e00.htm>

the global atmosphere and that is in addition to natural climate variability observed over comparable time periods⁶.

3. Basic concepts concerning adaptation

The basic concepts concerning adaptation have been defined by the IPCC and include “adaptation”, “vulnerability”, “sensitivity” and “adaptive capacity”. The following definitions of these basic concepts have been provided by Working Group II “Climate change impacts, adaptation and vulnerability” in its contribution to the IPCC Fourth Assessment Report⁷.

Adaptation

Adaptation was defined by the IPCC Working Group as an “Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.” The report distinguishes and defines different types of adaptation, including anticipatory, autonomous and planned adaptation. It also provides definitions of the terms “adaptation assessment”, “adaptation benefits” and “adaptation costs”.

Vulnerability

Vulnerability is defined as “the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.” Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its *sensitivity*, and its *adaptive capacity*.

Sensitivity

Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate variability or change. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea-level rise).

Adaptive Capacity

Adaptive capacity (in relation to climate change impacts) is “the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Under this framework, a highly vulnerable system would be a system that is very sensitive to modest changes in climate, where the sensitivity includes the potential for substantial harmful effects, and for which the ability to adapt is severely constrained. Resilience is the flip side of vulnerability - a resilient system or population is not sensitive to climate variability and change and has the capacity to adapt (IPCC, 2001).

⁶ IPCC, 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report. Summary for Policymakers. P. 22. Available online at: <http://www.ipcc.ch/SPM13apr07.pdf>

⁷ Available online at: <http://www.ipcc-wg2.org/>

A compact overview of these terms and concepts can also be found in the FAO Forests and Climate Change Working Paper 2 “Adaptation of forest ecosystems and the forest sector to climate change” (pp. 10ff.)⁸.

⁸ Available online at: <http://www.fao.org/forestry/site/30947/en>

ANNEX 2: GLOBAL INSTITUTIONAL AND POLICY FRAMEWORK

United Nations Forum on Forests

The United Nations Forum on Forests has recognised that climate change is a relevant issue to forests and the forest sector, but does not make specific reference to the adaptation of forests. The draft resolution text for the Non-legally Binding Instrument on All Types of Forests recognises “the impact of climate change on forests and sustainable forest management, as well as the contribution of forests to addressing climate change”. The Ad Hoc Expert Group on Consideration with a View to Recommending the Parameters of a Mandate for Developing a Legal Framework on All Types of Forests, upon which the instrument is based, mentioned that “a comprehensive, forest-specific, perspective was needed” regarding issues such as climate change.

In addition to this, the Report on the Seventh Session of the UNFF, which was compiled in 2007, does contain a number of references to the issue of forests and climate change, but these are not explicitly related to the adaptation of forests. A more focussed debate will take place at the Eighth Session of the UNFF in 2009, as the primary topic under the heading of “Forests in a Changing Environment”. Furthermore, the International Year of Forests, which is scheduled to occur in 2011, is likely to provoke further debate concerning the adaptation of forests to climate change.

United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) does not concentrate on adaptation of forests to climate change specifically. However, it provides the broader institutional framework for the global deliberations about adaptation to climate change.

The Convention refers to adaptation in several of its articles, but does not provide a definition of adaptation. Article 2 states the objective to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. It notes that such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. Other relevant articles express commitments towards taking mitigation and adaptation measures (Article 4.1b), preparing for adaptation to the impacts of climate change (Article 4.1e), taking into account climate change considerations in social, economic and environmental policies and actions with a view to minimizing adverse effects (Article 4.1f), and assisting developing countries in meeting costs of adaptation to those adverse effects (Article 4.4).

The UNFCCC developed practical guidance for assisting Parties in their adaptation efforts. The UNFCCC Secretariat prepared a “Compendium of methods and tools to evaluate impacts of, and vulnerability and adaptation to, climate”. In the year 2005, the Conference of the Parties of the UNFCCC adopted the “Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change.” This Work Programme consists of nine areas of work that are considered to be key to increasing the ability to successfully adapt: methods and

tools; data and observations; climate modelling; scenarios and downscaling; climate related risks and extreme events; socio-economic information; adaptation planning and practices; research; technologies for adaptation; and economic diversification.

Practical guidance for adaptation is also provided by the Intergovernmental Panel on Climate Change (IPCC) which published Technical Guidelines for Assessing Climate Change Impacts and Adaptations. These guidelines identify six steps for analysing vulnerability: (i) definition of the problem, (ii) selection of methods, (iii) testing methods, (iv) selection of scenarios, (v) assessment of biophysical and socio-economic impacts, (vi) assessment of autonomous adjustments.

Convention on Biological Diversity

The expanded programme of work on forest biological diversity (decision VI/22, paragraph 10, annex) constitutes the main policy framework specifically related to forests within the framework of the CBD. It consists of three programme elements (Conservation, sustainable use and benefit-sharing, institutional and socio-economic enabling environment; knowledge, assessment and monitoring) to which 12 goals, 27 objectives and 130 activities have been assigned.

One of these 27 objectives is to “mitigate the negative effects of climate change on forest biological diversity”⁹. The following five activities have been assigned to this objective:

- (a) Promote monitoring and research on the impacts of climate change on forest biological diversity and investigate the interface between forest components and the atmosphere;
- (b) Develop coordinated response strategies and action plans at global, regional and national levels;
- (c) Promote the maintenance and restoration of biodiversity in forests in order to enhance their capacity to resist to, and recover from and adapt to climate change;
- (d) Promote forest biodiversity conservation and restoration in climate change mitigation and adaptation measures;
- (e) Assess how the conservation and sustainable use of forest biological diversity can contribute to the international work relating to climate change.

Also other documents of the CBD make a number of important conclusions with respect to adaptation¹⁰. These documents note that biodiversity is impacted by climatic changes, but also plays an essential role in enabling adaptation. It is stated that adaptation activities may have either beneficial or detrimental impacts on biodiversity. These potential impacts and response activities on biodiversity need further in-depth examination so that advice can be integrated into the programmes of work of the CBD (including the Expanded Programme of

⁹ Programme Element 1 “Conservation, sustainable use and benefit-sharing”, Goal 2 “To reduce the threats and mitigate the impacts of threatening processes on forest biological diversity”, Objective 3 “Mitigate the negative impacts of climate change on forest biodiversity”,

¹⁰ See e.g.: CBD Technical Series No. 10. Interlinkages between biological diversity and climate change: advice on the integration of biodiversity considerations into the implementation of the United Nations Framework Convention on Climate Change; Biodiversity and Climate Change. Note by the Executive Secretary. UNEP/CBD/SBSTTA/12/7.

Work on Forest Biological Diversity). Such an examination should include risks and consequences for ecosystem services and human well-being.

As noted in the Terms of Reference of an Ad hoc Technical Expert Group on Biological Diversity and Climate Change, biodiversity by itself is a necessary component of a climate-change adaptation strategy. The degree of ecosystem resilience - which in turn is dictated by biodiversity structure and function - is an essential element of social-ecological systems if they are to maintain their adaptive capacity. Therefore, adaptation and biodiversity are highly interlinked as more resilient ecosystems may be better able to cope with climate change while providing essential services to society. Detailed assessments of these relationships are, however, needed in order to both fully illustrate and tap the potential of biodiversity in adapting to climate change and to translate the findings into practical guidance¹¹.

In July 2007, SBSSTA-12 adopted a recommendation for consideration by the Conference of the Parties at its ninth meeting in May 2008, containing "Proposals for the integration of climate change activities within the programmes of work of the Convention, options for mutually supportive actions addressing climate change within the Rio conventions and a summary of the findings of the global Assessment on Peatlands, Biodiversity and Climate Change" (Recommendation XII/5)¹².

¹¹ Climate Change: Terms of Reference of an Ad hoc Technical Expert Group. Note by the Executive Secretary. UNEP/CBD/SBSTTA/10/18. 22 October 2004.

¹² Advance unedited version available at <http://www.cbd.int/doc/meeting.aspx?mtg=SBSTTA-12>