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REPORTS ON INTER-SESSIONAL ACTIVITIES

METHODS AND TOOLS TO ASSESS CLIMATE CHANGE IMPACT
AND ADAPTATION

Report of the workshop on methodologies on climate change impact and adaptation

Note by the Chairman

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I. INTRODUCTION

A. Mandate

1. The Conference of the Parties, by its decision 9/CP.3, requested the secretariat “to continue its work on the synthesis and dissemination of information on environmentally sound technologies and know-how conducive to mitigating, and adapting to, climate change; for example by accelerating the development of methodologies for adaptation technologies, in particular, decision tools to evaluate alternative adaptation strategies”.
2. At its twelfth session, the Subsidiary Body for Scientific and Technological Advice (SBSTA) encouraged the secretariat to continue its work on collecting and disseminating information on the methods and tools to assess climate change impact and adaptation, noting that further action was needed to improve the quality of information, and to enhance the capability of developing country Parties to make the best use of available methods and tools (FCCC/SBSTA/2000/5, para.43 (a)).
3. The SBSTA, at its thirteenth session, requested the secretariat to organize a workshop to explore: (i) the experience of developing countries in applying current impact and adaptation methodologies, and their emerging needs; (ii) the current state of the art of methodologies as identified in the Intergovernmental Panel on Climate Change Third Assessment Report (IPCC TAR), and how these apply to the specific circumstances of developing countries; and (iii) options for improving the quality and dissemination of information on impact and adaptation methodologies (FCCC/SBSTA/2000/10, para. 47).

B. Scope of the note

4. This document contains a short description of the proceedings of the workshop (section II), a summary of the discussions (section III), and the conclusions (section IV).

C. Possible action by the SBSTA

5. The SBSTA may wish:
 - (a) To take note of information provided in this report, in particular of the conclusions of the workshop;
 - (b) To call the conclusions of the workshop to the attention of the Subsidiary Body for Implementation for consideration, as appropriate, in its future work related to adaptation;
 - (c) To provide the secretariat with guidance on any further work in relation to how to improve the quality and dissemination of information on the methodologies to assess climate change impact, vulnerability and adaptation. The SBSTA may also wish to consider what, if anything, it can do to encourage the development of improvements to existing models;
 - (d) To consider cooperation with the United Nations and other international organizations in the areas of improvement of methodologies, and collection and dissemination of information on methods and tools to assess climate change impact, vulnerability and adaptation.

II. PROCEEDINGS

6. The UNFCCC workshop on methodologies on climate change impact and adaptation was held at Sainte Adèle, Canada, from 11 to 14 June 2001. Forty-three experts in the field of vulnerability and adaptation from Parties and international organizations participated in the workshop. Participants included experts from the UNFCCC roster of experts, the experts involved in preparation of the IPCC TAR, and/or directly involved in preparation of national communications. The workshop was held in cooperation with a United Nations Development Programme – Global Environment Facility (UNDP – GEF) workshop on an adaptation policy framework and in cooperation with Environment Canada. The agenda of the workshop is provided in annex I to this document.

7. In accordance with the mandate, the workshop focused on the following main issues: (a) IPCC TAR findings regarding impact and adaptation methodologies and how these apply to the specific circumstances of developing countries; (b) the experiences of developing countries in applying current impact and adaptation methodologies and their emerging needs, and (c) options to improve the quality and dissemination of information on methods to assess climate change impact and adaptation. The workshop consisted of an introductory session, three working sessions devoted to each of the objectives, and a concluding session. The workshop was chaired by the Chairman of the SBSTA, Mr. Harald Dovland (Norway). Discussion at working sessions was facilitated by moderators as indicated in the agenda (see annex I below).

8. The first session included several presentations by the lead authors of the third assessment report (TAR). They presented information from the report on methods and tools to assess climate change impact and adaptation, developing and applying climate change scenarios for the assessment, adequacy of current methodologies as tools for designing adaptation policies, and possible improvement of IPCC technical guidelines in the light of their findings on adaptation.

9. The second session was devoted to exchanging information on the experiences of national experts from developing and developed countries and organizations in applying current methodologies. The experts discussed the limitations of the current methodologies, identified solutions and made suggestions regarding the evolution of vulnerability and adaptation assessments to be undertaken as part of the preparation of national communications.

10. The discussions at the previous two sessions provided the background for the third session of the workshop. The focus of that key session was to consider how to improve methods and tools to assess impact and adaptation and how to improve the quality and dissemination of information on methodologies. Two breakout groups were convened to discuss these issues.

11. The preliminary conclusions of the workshop were synthesized by the Chairman of the workshop, integrating the summaries of the discussion prepared by the moderators of each of the three sessions. The preliminary conclusions were considered and accepted by the participants at the final plenary session of the workshop. It should be noted that some sessions and breakout groups reached similar conclusions, resulting in some duplication in the following sections of this report.

III. WORKSHOP SUMMARY

A. Current state of the art of methodologies as identified in the IPCC TAR, and how these apply to the specific circumstances of developing countries

12. The workshop participants noted that according to the IPCC TAR, multiple tools exist for analysing climate change impacts, vulnerability and adaptations. It was also noted that the IPCC TAR provides a sound base for developing common methodological approaches to assess climate change impacts, vulnerabilities and adaptations, including the specific circumstances of developing countries.

13. Participants pointed out that the TAR has served to broaden the concept of adaptation, and argued that it should be analysed in the context of social and economic policies. Methodologies for adaptation assessment, therefore, should take into account non-climatic forces, such as economic, social and ecological stresses.

14. It was pointed out that assessments of vulnerability and adaptation to climate change should consider all relevant climate risks, especially those associated with climate variability and extremes. Participants noted that the connection between long-term climate change and changes in variability and extremes should not to be considered an exclusively methodological issue. Changes in climate variability and extremes were seen as an inherent part of climate change.

15. Participants acknowledged that methodologies for assessing regional and local climate change impacts and vulnerabilities are very limited. They also noted a number of limitations in methodologies used to evaluate adaptation options. It was noted, for example, that economic cost and benefit analysis of adaptation measures are usually limited, especially in developing countries.

B. Current experience in applying the methodologies and associated emerging needs of developing countries

16. With regard to the application of current impact and adaptation assessment methodologies, participants noted that many studies have been undertaken, but only a few have focused on adaptation policies or activities. Resources and time have been directed towards the assessment of first-order biophysical impacts, with less attention given to socio-economic impacts and adaptations. Participants noted, however, that capacity has been built in developing countries to assess the impacts of climate change and, to a limited extent, to evaluate potential adaptive responses.

17. Participants stressed that there is a need to extend the standard, climate scenario-driven approach for assessing climate change impact and adaptation options. In order to ensure that adaptation policies are operationalized, this approach should shift towards more practical policy-oriented approaches.

18. Participants acknowledged a need to show the connection between long-term climate change and changes in variability and extreme events in order to understand risks to society. It was suggested that the use of analogues based on previous experiences is an effective means to engage policy makers and to build support for adaptation policies. Participants also emphasized that in order to improve impact, adaptation and vulnerability studies and the utility of

methodologies, the stakeholders should be involved at every stage of the assessment. Assessments should address issues most relevant to the stakeholders.

19. Participants noted that the methodologies chosen for impact and adaptation analyses depend on the policy context in which they are to be applied. Two examples were cited, that is, national communications under the UNFCCC and national planning decisions and policy processes.

20. The participants suggested that an effort should be made to reconcile international and national processes, so that impact, vulnerability and adaptation assessments can meet the needs of the decision-making process. It was stressed that most stakeholders and policy decision makers have little interest in longer-term climate change conditions and impacts (e.g., impacts of changed temperature in 2050). As a result, impact and adaptation studies under the domain of the UNFCCC do not generally lead to adaptation actions. However, stakeholders and policy makers are interested in immediate climate variations and extremes, which have a more significant and visible impact.

21. The participants stressed that in developing countries there is a need for further studies to incorporate traditional and local knowledge and to be integrated into national sustainable development processes. At the workshop, such studies were referenced as “second generation” vulnerability and adaptation assessments. The participants felt there was a need to have flexibility in choosing methods for conducting such assessments. Participants stressed that for most countries, particularly Parties not included in Annex I to the Convention (non-Annex I countries), methods must be practical, appropriate, feasible, easy to implement and inexpensive. They should not require data which is not available or would require considerable time and excessive resources to compile.

C. Improvement of quality of methods and dissemination of information

22. Regarding the improvement of methods, participants noted the need for a systematic comparison of existing methods and a synthesis of practical experiences in their application. It was suggested that inter-comparisons of the methods using standard data sets should be a goal, but it may be difficult because each method requires different data. Participants also noted that inter-comparisons of the same scale (local/national) and level of analysis (project/strategy) and with the same focus (single decision maker/multiple stakeholders; sector/integrated planning) were all required.

23. Participants noted that any effort to improve assessments should focus on both data quality and methods.

24. Suggested options for improving data included data rehabilitation (using statistical analysis to fill in gaps on observed data series), data quality control, and the improvement of observation systems. Synthesizing knowledge about current experience in dealing with climatic stresses, was seen as being as important as data gathering.

25. Discussions at the working group meetings revealed different perceptions about ways to improve methods and models to assess impacts and adaptation. From the perspective of some participants from developed countries it should be a process that involves testing and comparing similar models (e.g., the activity of the vegetation/ecosystem modeling and analysis project,

which involves a comparison of terrestrial ecosystem models). From the perspective of most participants from developing countries, the main effort should be directed at enhancing national capacity to develop or improve methods appropriate to their national circumstances.

26. Participants noted that there was a need to coordinate efforts on the development of methodologies and encourage their testing at the regional level where feasible. The application of different methods within one country was pointed out as one of the options for determining the uncertainty of the results. In addition, it was recognized that having better access to the expertise, methods and literature from the developed countries is essential for developing countries.

27. Participants stressed the need for more opportunities for information sharing, and for promoting a two-way feedback process between developers of models and end-users and among end-users, so that the needs of the end-users may be taken into account in the further development of models and methodologies. This would effectively constitute a capacity-building exercise that would optimize the use of available models and make use of the experience gained through the previous use of existing methodologies. Impacts and vulnerabilities that are common to neighbouring countries render the regional context of particular relevance in this process of information exchange.

28. On the matter of improving the quality and dissemination of information on impact, vulnerability and adaptation methodologies, participants acknowledged that information sharing, both among countries and within countries, was an essential feature of climate change impact, vulnerability and adaptation assessments. One main objective of the dissemination of information should be to facilitate the preparation of the "second generation" of vulnerability and adaptation assessments. It was pointed out that this would imply expanding the range of methodologies and addressing the needs and priorities of the stakeholders involved.

29. Participants stressed that the exchange of information should be interactive and involve both developers of methods and end-users. They noted that the source of new information could include country submissions (e.g., national communications) and feedback from the Global Environment Facility (GEF). Non-governmental organizations and academics should also be involved, but the process might need incentives to be provided for their effective participation.

30. Information for dissemination should be more descriptive and should reflect the appropriateness of the methods for particular purposes, and should also be accompanied by more detailed examples of the applications of the methods.

31. Participants suggested that the UNFCCC secretariat should play a more active role in the exchange and dissemination of information on methods to assess impact, vulnerability and adaptation, serving as a permanent information clearing house in this area. The secretariat should provide continuity and maintain institutional memory about the status of methods. In particular, it was pointed out that easy access to information on experiences in applying different methods by different countries within the framework of different projects (e.g., GEF, the United Nations Environment Programme (UNEP), IPCC, UNDP, etc.) was very valuable for all countries, particularly for developing countries. On the other hand, applying the same method/model in different countries could provide useful data for developers who are interested in improving methods and models. Therefore, it was deemed important to ensure that the

UNFCCC effort on the dissemination of information should be closely linked to other organizations.

IV. WORKSHOP CONCLUSIONS

32. The workshop participants concluded that there is a need:

(a) To ensure that national vulnerability and adaptation assessments focus on policy options, are oriented towards national planning, processes and decisions, incorporate traditional knowledge and are integrated into national sustainable development programmes (see para. 21);

(b) To modify approaches to impact, vulnerability, and adaptation assessments and promote the evolution of methods to better address risks associated with variability and extreme events;

(c) To involve key stakeholders in national impacts, vulnerability and adaptations assessment in order to ensure that relevant aspects of the climate change issue are taken into account;

(d) To compare vulnerabilities and adaptation to previous and current experience in adapting to climate variability and extremes, and ensure that methods are practical, appropriate, feasible, easy to implement and that they use data which are readily available; and

(e) To build national capacity for developing, identifying and applying the most appropriate methods based on national circumstances and, where needed, establish national climate change technical teams to this end.

33. Participants further concluded that, in relation to the improvement of methodologies and the dissemination of information about them, there is a need:

(a) To promote interaction between end-users and developers of methodologies;

(b) To ensure that the evolution of methodologies takes on board the experience acquired in socio-economic and environmental disciplines;

(c) To coordinate the development of methods and encourage testing at the regional level when feasible;

(d) To apply different methods within one country to determine the variance and/or uncertainty of the results;

(e) To improve data quality, including meteorological data, and promote observation systems;

(f) To improve the dissemination of information on methods, and improve the exchange of information in an interactive manner,

(g) To disseminate information on methods and tools to assess climate change impact, vulnerability and adaptations in accordance with the needs and priorities of stakeholders/users;

(h) To supplement the information for dissemination with an evaluation of the methods based on experience gained from their application.

34. The participants suggested that:

(a) The conclusions of this workshop be considered and taken into account in further activities on adaptation under the UNFCCC;

(b) As part of any future activities, information should be collected and disseminated that facilitates the preparation of “second generation” vulnerability, impact and adaptation assessments; and

(c) Activities on methodologies for impact assessment and adaptation carried out in the UNFCCC framework be coordinated with related activities in other international organizations.

Annex

Workshop Agenda

**UNFCCC WORKSHOP ON METHODOLOGIES
ON CLIMATE CHANGE IMPACT AND ADAPTATION**

back-to-back with

UNDP-GEF WORKSHOP FOR DEVELOPING AN ADAPTATION POLICY FRAMEWORK

**Hotel Mont Gabriel, Ste Adèle, near Montreal, Canada
11 – 14 June 2001**

Sunday, 10 June

18:00-19:00 Registration for both meetings

Monday, 11 June

08:00-08:30 Registration for both meetings

08:30-10:00 *Welcome, opening and introduction. (jointly with UNDP - GEF)*

Welcome address: R. Street, Impacts and Adaptation Research, Environment Canada, Canada

Opening address: H. Dovland, Chairman of the SBSTA, UNFCCC

Adaptation issues in STAP: Paola Rossi, STAP

UNFCCC workshop: objectives, focus and procedure: O. Pilifosova, UNFCCC secretariat

Objectives and focus of the UNDP - GEF workshop: B. Lim, UNDP - GEF

10:00-10:20 Coffee break

10:20-13:00 **UNFCCC Session I: *The current state of the art of methods identified in the IPCC Third Assessment Report***

Moderators: P. Kertland (Canada) and A. Githeko (Kenya)

Overview of the IPCC TAR WGII Chapter 2 "Methods and tools".
- G. Yohe (USA)

IPCC TAR WGII findings regarding adaptation and their implications for impacts/vulnerability/adaptation methodologies.

- B. Smit (Canada)

Developing and applying scenarios: A summary of the IPCC TAR.

- R. Jones (Australia)

Guidelines for impact and adaptation assessment: Design versus implementation issues.

- R. Klein (Netherlands)

Methods of impact and adaptation assessment: Perspectives from the IPCC Task Group on Climate Impact Assessment. (Hand-out presentation)

- (M. Parry (UK)

Discussion.

Summary by moderators.

13:00-14:00 Lunch

14:00-16:00 UNFCCC Session II: *Experiences in applying current impact and adaptation methodologies*

Moderator: B. Smit (Canada)

Introduction: Adaptation in the UNFCCC process.

- Y. Nassef (UNFCCC)

V&A methodologies in national communications:

Findings and recommendations of the Consultative Group of Experts (co-presentation).

- I. Niang-Diop (Senegal)

Methodological needs and constraints in the area of V&A assessment in the Central American region.

- E. Sempris (Panama)

Regional experience in applying V&A methods in SIDS.

- P. Carruthers (Cook Islands)

16:00-16:20 Coffee break

16:20-18:30 UNFCCC Session II (*continued*): *Experiences in applying current impact and adaptation methodologies*

Climate change vulnerability and adaptation: Health dimensions.

- C. Corvalan (WHO)

Canadian experience.

- R. Street (Canada)

UK approach to climate change: Impacts and adaptation.

- P. Bramwell (UK)

Round table: Short 5 –7 min. presentations on country experience in applying methods: I.Yesserkepova (Kazakhstan), R. Jones (Australia), S. Safi (Lebanon)

Discussion

Summary by the moderators

19:30 Reception hosted by the Adaptation and Impacts Research Group, Meteorological Service of Canada, Environment Canada.

Tuesday, 12 June

UNDP - GEF WORKSHOP ON AN ADAPTATION POLICY FRAMEWORK

Wednesday, 13 June

10:20-12:30 UNFCCC Session III: *Options for improving the quality and dissemination of information on methodologies*

Moderators: J. Smith (USA) and A. Suarez (Cuba)

UNFCCC work on collection and dissemination of information on methods.

- O. Pilifosova, UNFCCC

How can impact models, information about them and their use be improved?

- J. Smith (USA)

Plenary discussion

12:30-14:00 Lunch

14:00-18:00 UNFCCC Session III (*continued*): *Options for improving the quality and dissemination of information on methodologies*: Break-out groups will be used to consider specific questions on this topic.

Improving the quality of methods to assess impacts and adaptation.

Improving quality and dissemination of the information on methods.

Summary by moderators

Thursday, 14 June

8:30 – 10:00 UNDP - GEF WORKSHOP ON AN ADAPTATION POLICY FRAMEWORK

**UNFCCC WORKSHOP ON METHODOLOGIES ON CLIMATE CHANGE
IMPACT AND ADAPTATION**

UNDP - GEF WORKSHOP ON AN ADAPTATION POLICY FRAMEWORK

10:20-14:00 *Conclusions and Recommendations (jointly with UNDP - GEF)*

Part A: Conclusions of the UNFCCC workshop
- H. Dovland, Chairman of the SBSTA, UNFCCC

Discussion

Part B: Recommendations of the UNDP - GEF workshop.
- I. Burton (Canada)/S. Huq (Bangladesh)

Discussion

Closing remarks
