UNEP

CBD

Convention on Biological Diversity

Distr.
GENERAL

UNEP/CBD/COP/9/INF/43
28 March 2008

ENGLISH ONLY

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Ninth meeting
Bonn, 19-30 May 2008
Item 4.2 of the provisional agenda*

REPORT OF THE INTERNATIONAL EXPERT MEETING ON RESPONSES TO CLIMATE CHANGE FOR INDIGENOUS AND LOCAL COMMUNITIES AND THE IMPACT ON THEIR TRADITIONAL KNOWLEDGE RELATED TO BIOLOGICAL DIVERSITY -THE ARCTIC REGION

Note by the Executive Secretary

1. The impact of climate change on indigenous and local communities, their traditional knowledge and related biological diversity is of great concern to the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD). In decision VIII/5 B, section I, on phase two of the composite report, paragraph 6, the Parties noted with concern the specific vulnerabilities of indigenous and local communities, *inter alia*, of the Arctic, small island States and high altitudes, concerning the impacts of climate change and accelerated threats, such as pollution, drought and desertification, to traditional knowledge, innovations and practices, and requested further research be conducted, subject to the availability of resources, into highly vulnerable indigenous and local communities, with a focus on causes and solutions, with the outcomes of the research to be made available to the Working Group on Article 8(j) and Related Provisions for attention at its fifth meeting. 1/ At that meeting, the Working Group considered the report (UNEP/CBD/WG8J/5/INF/18) and made several recommendations for the consideration of the ninth meeting of the Conference of the Parties. The report has been included as a information document for the current meeting to provide an overview of the impacts of climate change on indigenous and local communities, as preparation for the discussions during the meeting, concerning observed and potential impacts of climate change measures on indigenous and local communities, their traditional knowledge and biological diversity in the Arctic region.

* UNEP/CBD/COP/9/1.

1/ Article 8(j) as a cross-cutting issue within the Convention on Biodiversity provides indigenous and local community perspectives throughout the work of the CBD.

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2. Furthermore, the initial research has stimulated a great deal of interest across the international system by providing, for the first time, a human face to climate change. As such, it resulted in "Indigenous Peoples and Climate Change" being chosen as the theme for the annual meeting of the United Nations Inter-Agency Support Group on Indigenous Issues, held in Montreal in September 2007, and for the seventh session of the United Nations Permanent Forum on Indigenous Issues, to be held in New York in April 2008. 2/ Biodiversity, climate change and indigenous and local communities also formed the basis for a photographic exhibition created by the Secretariat of the Convention, which has been featured at United Nations Headquarters (New York, May–September, 2007), the UNESCO General Conference (Paris October–December), and the IFAD General Conference (Rome, March – April 2008), and will be on display at the ninth meeting of the Conference of the Parties to the CBD (Bonn, May 2008) and at FAO's High level Segment, Rome, in June 2008.

3. The meeting builds on the work of previous Ad Hoc Technical Expert Groups (AHTEG) on biodiversity and climate change and makes use of the reports of the AHTEG, presented as CBD Technical Series No. 10, *Interlinkages between Biological Diversity and Climate Change*, and CBD Technical Series No. 25, *Guidance for Promoting Synergy among Activities Addressing Biological Diversity, Desertification, Land Degradation and Climate Change*,.

4. Finally, through decisions by the Conference of the Parties and recommendations from the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to the CBD, Parties have called for the enhanced integration of climate change impact and response activities within the programmes of work of the Convention. Guidance towards such integration includes:

(a) Indications or predictions of climate-change impact-response activities on relevant ecosystems;

(b) The most vulnerable components of biodiversity;

(c) The risks and consequences for ecosystem services and human well-being;

(d) The threats and likely impacts of climate change and response activities on biodiversity and opportunities they provide for the conservation of biodiversity and its sustainable use;

(e) Monitoring of the threats and likely climate-change impacts and response activities on biodiversity;

(f) Appropriate monitoring and evaluation techniques, related technology transfer and capacity-building initiatives within the programmes of work;

(g) Critical knowledge needed to support implementation, including *inter alia*, scientific research, availability of data, appropriate measurement and monitoring techniques, technology and traditional knowledge; and

(h) The ecosystem-approach principles and guidance and the precautionary approach.

5. In order to fully respond to this mandate it will be necessary to include not just consider scientific information on impacts and vulnerability, but also indigenous and local community knowledge, innovations and practices.

2/ The special theme of the seventh session of UNPFII (21 April - 2 May 2008) is: "Climate change, bio-cultural diversity and livelihoods: the stewardship role of indigenous peoples and new challenges".

6. The meeting was made possible through the generous support of the Government of Finland. The meeting was held from 25-28 March 2008, in Helsinki, Finland.

ITEM 1. OPENING OF THE MEETING

7. Mr. Jussi Soramäki, Head of Branch, European Union and International Biodiversity from the Ministry of the Environment of Finland, opened the meeting at 10 a.m. on Tuesday 25 March 2008.

8. Mr. Soramäki welcomed participants expressing his pleasure in hosting the meeting and recognizing the longstanding relationship between the Government of Finland and the Saami Parliament. Mr. Soramäki, reminded participants of the recommendations of the thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), particularly recommendation XIII/6 on enhancing cooperation between the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC).

9. Drawing a parallel between the very mild winter being experienced in Finland, Mr. Soramäki reminded participants that Arctic ecosystems are among the most vulnerable ecosystems to the impacts of climate change. In Southern Finland, for example, connectivity between protected areas will allow species to move along temperature gradients and assist in maintaining ecosystem resilience and integrity however, in the Arctic regions in the North, there is nowhere for species to move as ice melts and habitats change.

10. In a statement read on his behalf, Mr. Klemetti Näkkäläjärvi, President of the Saami Parliament of Finland, informed participants that the impacts of climate change are already being felt by the Saami people and are threatening their traditional knowledge and livelihoods.

11. Mr. John Scott, Programme Officer on Article 8(j) with the Secretariat of the CBD, thanked Mr. Soramäki and Mr. Näkkäläjärvi for their remarks and welcomed participants on behalf of the Executive Secretary. Mr. Scott further thanked the Government of Finland for their foresight and efforts in organizing, funding and hosting the meeting.

ITEM 2. ORGANIZATIONAL MATTERS

2.1. Officers

12. Participants nominated Mr. Esko Jaakkola, Environment Counsellor, Nature Conservation, within the Ministry of the Environment of Finland and Ms. Gunn-Britt Retter, Head of the Arctic and Environmental Unit within the Saami Council as co-chairs of the meeting. The Secretariat was requested to act as rapporteur to the meeting.

2.2. Adoption of the agenda

13. After an introduction by the Secretariat, the Working Group adopted the agenda as presented in UNEP/CBD/EM.CC-ILC/1/1/Rev.1.

2.3. Organization of work, including a review of documentation and case-studies

14. After an introduction by the Secretariat, the Working Group also adopted the organization of work outlined in the annotated agenda UNEP/CBD/EM.CC-ILC/1/1/Add.1.

ITEM 3. SUBSTANTIVE MATTERS

15. The co-chair, Mr Jaakkola, opened the substantive discussions reminding participants that the main purpose of the meeting is to put a human face on climate change through discussions on Arctic indigenous and local communities and their traditional knowledge and biological diversity in the face of climate change.

16. The chair also reminded participants that the ninth meeting of the Conference of the Parties to the CBD will provide an opportunity to present the report and recommendations of the meeting as will the seventh meeting of the United Nations Permanent Forum on Indigenous Issues. The report will also be transmitted to the Secretariat of the UNFCCC and the Intergovernmental Panel on Climate Change. As such, the chair encouraged participants to focus on developing concrete suggestions and recommendations whenever possible.

17. Recommendations were collated and distilled from discussions during the plenary and working groups. The recommendations are attached as annex I.

3.1 Observed and potential/predicted impacts of climate change in the Arctic region: the most vulnerable components of biodiversity

18. Mr. Brian MacDonald, representative of the Arctic Arthabaskin Council, introduced the agenda item outlining the fact that there has already been a significant body of work on the impacts of climate change on biodiversity in the Arctic. Mr. MacDonald referred specifically to the Fact Sheet on Climate Change (UNEP/CBD/EM.CC-ILC/1/2), the Arctic Climate Impact Assessment, and the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

19. Emphasizing the integral role of indigenous peoples in the Arctic, Mr. MacDonald revealed that many of the findings reflected in scientific reports are supported by observations from Arctic communities. Examples of such observations include, salmon spawning patterns, behaviour of prey species such as moose, and spruce beetle infestations in the boreal forest. Mr MacDonald further revealed that these changes and the responses to these changes are already causing changes in lifestyles including access to food, security and safety and transportation avenues.

20. Mr. MacDonald concluded by raising a number of points for further discussion including (1) linking traditional knowledge to the scientific body of research, (2) defining how international processes and assessments of vulnerability and impacts can be practical for Arctic indigenous communities and (3) ensuring that indigenous peoples, who have the skills to adapt to climate change, also have access to adequate financial resources.

21. Mr. Merlin Koonooka from the Native Village of Gambell, Alaska, presented a report on the observations of local hunters regarding the impacts of climate change on biodiversity and indigenous peoples in Alaska. In his presentation Mr. Koonooka advised participants that changes have been observed in waterfowl migration patterns, the availability of fish such as cod and the habits of seals and walruses. Mr. Koonooka also highlighted some of the positive impacts of climate change on biodiversity in the Arctic including summer salmon stocks, root and berry growth and whale populations. A summary of Mr. Koonooka's report is contained in annex IV.

22. In discussions following the presentation, participants noted that, while the number of species and net primary productivity may increase in the Arctic, these changes might cause further conflicts, for example, between forestry and traditional livelihoods.

23. Other observed impacts presented by participants include: the formation of ice layers over fodder lichen preventing access to grazing, greater exposure to natural disasters such as floods, degradation of wetlands due to changing freeze-thaw cycles, increased exposure to invasive alien species, and higher reproductive deaths due to premature births among reindeer. Some participants also noted that when

indigenous plants and animals move northwards they should not be considered as invasive species but as climate refugees.

24. Furthermore, the timing of traditional sustainable use activities such as reindeer herding, hunting and fishing has changed. One such example was presented concerning areas of the Russian Arctic where traditional slaughters have been delayed because of difficulty in freezing the meat thereby offsetting the grazing land management cycle causing increased degradation of pastures and erosion.

3.2 Measures taken in the Arctic and elsewhere: overview of the work of the United Nations system on climate change and indigenous and local communities

25. Ms. Jaime Webbe, Programme Officer with the Secretariat of the CBD, presented an overview of policies, tools and information on climate change and biodiversity within the CBD as well as elsewhere within the United Nations including the UNFCCC, and other international processes. Ms. Webbe also noted that although there is no specific programme of work on Arctic biodiversity within the CBD, the Arctic is included in other programmes of work including the marine and coastal programme of work and Article 8(j). Sources of information on biodiversity and climate change highlighted by Ms. Webbe include: the Arctic Climate Impact Assessment (ACIA), reports of the Intergovernmental Panel on Climate Change (IPCC), the Global Environment Outlook 4, the Global Outlook on Ice and Snow, and the CBD webpage on climate change and biodiversity (http://adaptation.cbd.int).

26. Mr. John Scott presented an overview of the United Nations system, the 2010 biodiversity target, and activities linking climate change and indigenous and local communities within the CBD, the Inter-Agency Support Group on Indigenous Peoples' Issues (IASG), and the United Nations Permanent Forum on Indigenous Issues (UNFPII). Mr. Scott also introduced the IASG Collated Paper on Indigenous Peoples and Climate Change (E/C.19/2008/CRP.2), containing the climate change and indigenous related activities of eleven agencies.

27. Ms. Anita Kelles-Viitanen, consultant with the International Fund for Agricultural Development (IFAD) highlighted rural farmer forums, index-base weather insurance, drought and flood mitigation, livelihood diversification programmes and support for indigenous women as activities linking biodiversity and climate change within IFAD. With regards to mitigation, Ms. Kelles-Viitanen identified forest conservation and restoration and conservation tillage as key activities, which involve indigenous and local communities in climate change measures.

28. Mr. Douglas Nakashima, chief of the Sciences for Society Section of the Division of Science Policy and Sustainable Development within the United Nations Educational, Scientific and Cultural Organization (UNESCO) presented relevant activities within UNESCO including climate and sea level observing systems, climate research, climate change and World Heritage Sites, and the Decade on Education for Sustainable Development. Mr. Nakashima also highlighted the Local and Indigenous Knowledge Systems (LINKS) Programme which aims to document traditional knowledge, where this is appropriate, and carry out activities that link scientific and traditional knowledge and strengthen the transmission of traditional knowledge.

29. Mr. Peter Bates from the Local and Indigenous Knowledge Systems (LINKS) unit of the United Nations Educational, Scientific and Cultural Organization (UNESCO) presented information on a new project referred to as the Global Forum for Indigenous Peoples, Small Islands and Vulnerable Communities. This forum will focus on community level observations on climate change impacts, adaptation strategies and the consequences of mitigation measures and will be conducted in partnership with the UNPFII, the Office of the High Commissioner for Human Rights (OHCHR) and the CBD.

30. Discussions focused on making better use of existing tools such as the CBD Clearing House Mechanism in order to share knowledge and information effectively and efficiently in response to the particularly rapid rates of change in the Arctic.

31. Discussions on adaptation included (i) autonomous adaptation, (ii) reactive adaptation, and (iii) proactive adaptation. In particular, participants emphasized the need for proactive adaptation in the Arctic to address the predicted impacts of climate change before they are realized.

32. Participants also discussed the challenge of providing relevant information on measures to address climate change in the Arctic to the UNFCCC Nairobi work programme and Bali Action Plan process, bearing in mind that the framework for such input is not yet fully developed.

3.3. Observed and potential impacts of these measures on biodiversity in the Arctic region

(a) Analysis of the potential benefits and threats from mitigation and adaptation activities, including but not limited to carbon-trading, biofuels and mono-cropping, infrastructure development, support for traditional livelihoods/occupations

33. Ms. Jaime Webbe presented an overview of mitigation and adaptation definitions, approaches, tools and considerations within the CBD and UNFCCC processes and as presented in the reports of the previous Ad Hoc Technical Expert Groups on Biodiversity and Climate Change.

34. Ms. Annie Cung of the Secretariat of the Convention on Biological Diversity introduced document UNEP/CBD/EM.CC-ILC/1/3, Compilation of Case-studies on Climate Change and Biodiversity Considerations in the Arctic.

35. Discussions identified the need for Arctic specific issues to be integrated into adaptation measures. Further discussions touched on how indigenous knowledge and needs can be better reflected in activities to enhance the consideration of biodiversity issues in climate change response measures.

36. Participants also noted that many of the mitigation measures, which are currently receiving a lot of attention, may not be relevant to the Arctic. However hydropower, nuclear energy (and associated uranium mining), carbon capture and storage and wind farms may have impacts on biodiversity and indigenous peoples in the Arctic.

37. The co-chairs established five breakout groups to continue discussions on the potential benefits and threats of climate change response measures on Arctic biodiversity and indigenous peoples in the Arctic.

38. In the reports to plenary, the breakout groups identified a number of potential benefits for Arctic biodiversity and indigenous peoples from: reducing emissions from deforestation and forest degradation (conservation), land use and land use change (promoting sustainable practices, co-management, restoration of degraded ecosystems), and reforestation (recovery of natural forests).

39. The breakout groups further identified potential threats from: afforestation and reforestation (changing land use, threatening the relevance of traditional knowledge, including the introduction of invasive alien species/ non-native species, the movement of native species outside their natural range, changes in local climates), hydropower development (land flooding, changes in fish migration routes and availability, changes in land use and access), wind farm development (changes to migration routes and threats to birds), carbon capture and storage (carbon ‘pollution’ where the deep sea bed was proposed for storage, and possible erosion of sub-surface rights), and nuclear power (safety, uranium mining, waste disposal).

40. Other comments include:

- The need for national mitigation and adaptation strategies to fully consider all environmental, socio-economic and cultural impacts on indigenous and local communities;

- The need to better define and reclassify 'wastelands' recognizing that sparsely populated lands may in fact be used and/or occupied by indigenous peoples;

- The potential local economic benefits to indigenous peoples from energy development in the Arctic;

- The need to recognize the value of traditional knowledge for minimising the negative impacts of mitigation measures;

- The need to evaluate mitigation measures on a case by case basis as impacts vary depending on scale, scope and placements;

- Many alternative energy options in the Arctic will require the development of roads and other infrastructure which will provide access to previously inaccessible lands (can be a benefit or a threat);

- Changes in the land use may change the relationship between indigenous peoples and their land thereby increasing the likelihood of the subjugation of traditional knowledge;

- The need for conflict resolution models for mitigation measures in the Arctic;

- The need to ensure that full carbon-counting is carried out for mitigation in the Arctic bearing in mind specific Arctic issues such as melting and receding permafrost and changing travel patterns;

- Recognize unique opportunities for maintaining existing stores of carbon in the Arctic in, for example, peatlands including payments for Arctic ecosystem services;

- The need to continue exploring new technologies for mitigation in the Arctic.

41. With regards to adaptation, there is a clear role for indigenous peoples in the monitoring of vulnerability and impacts.

42. Potential negative impacts from adaptation could include the loss of control of traditional knowledge. Furthermore, the expansion of protected areas and corridors could potentially restrict natural resource access and use rights of indigenous peoples.

43. Other comments include:

- The need to ensure that traditional knowledge is respected, properly interpreted and used appropriately in adaptation planning and monitoring (including the use of traditional knowledge and scientific information to form new kinds of knowledge);

- The need to recognize that successful adaptation of indigenous peoples in the Arctic will be closely linked to access and use rights over biodiversity and land resources (indigenous participants referred to the concept of fate-control);

- The need for capacity building and additional financial resources for indigenous peoples in order to enhance adaptive capacity;

- The need to establish short, medium and long term adaptation goals;

- The need to address the gap between international policy and local actions (including awareness raising, improving access to tools and methodologies);

- The potential benefits of small-scale sustainable agriculture, including organic agriculture and organic certification for indigenous peoples in the changing climate in the Sub-Arctic.

- The need to identify opportunities for restoring degraded lands.

(b) Possible opportunities climate change, mitigation and adaptation activities may provide for the conservation of biodiversity and its sustainable use

44. Mr. Heikki Toivonen from the Finnish Environment Institute introduced the item reminding participants that, in the Arctic, the greatest potential with regards to mitigation lies in enhancing and conserving existing sinks. In this regard, it is important to examine how Arctic ecosystems can be maintained intact while preserving sustainable use, indigenous and traditional knowledge, livelihoods and lifestyles.

45. With regards to adaptation, Mr. Toivonen suggested that participants focus on capacity-building to ensure that indigenous peoples can participate in monitoring, reporting and the implementation of climate change response activities.

46. Participants then formed a small group to discuss this item in more detail. In the report back to the plenary, the small groups highlighted the need for increased public awareness on adaptation issues. The groups further identified opportunities to enhance adaptation to climate change including through:

- Developing, resourcing and implementing community-based adaptation plans,

- Further examining the concept of resilience (ecological, and bio-cultural),

- Emphasizing flexibility as a necessary component by itself in many indigenous and local livelihoods as well as in mixed livelihood economies in the Arctic,

- Enhancing geographic information systems and community mapping,

- Enhancing links between traditional knowledge and science,

- Developing co-management mechanisms,

- Establishing good practice examples which can be shared with other regions,

- Developing conflict resolution models (including the identification of potential areas of conflict), building on traditional knowledge regarding disaster management,

- Enhancing self-sufficiency through the expansion of sustainable agriculture, possible economic opportunities from high quality fresh water, dialogue between different peoples, and recognition of community protected areas, amongst others.

47. The small group also identified some existing policies, laws and regulations that may limit adaptation such as those that apply to migration routes, hunting seasons, etc. These policies will need to be revisited under changing climatic conditions. The group further identified the lack of adequate and appropriate protection of traditional knowledge as a barrier to the sharing, use and realization of the full potential of this knowledge. The group also noted that the lack of an established infrastructure and mechanisms for disaster mitigation in the Arctic region may lead to greater impacts of climate change.

48. Finally the group noted that some economic changes as a result of climate change (including enhanced mineral exploitation, increased shipping) may provide both opportunities and threats to indigenous and local communities and their traditional knowledge related to biodiversity.

49. Discussions highlighted possible unique opportunities for some forms of agriculture, including sustainable and organic agriculture, in the Arctic to enhance biodiversity, whereas in many other regions large scale commercial agriculture presents the greatest threat to biodiversity. In fact in the Arctic, agriculture may allow indigenous people to recapture some traditional production measures and increase diversity of production.

50. Possibilities were identified, for further exploration including the organic certification of local specialties like berries, mushrooms and other wild or organically produced products, as an opportunity for increased income.

51. Further discussions highlighted additional challenges to biodiversity from climate change in the Arctic, including threats to fresh-water fish, because of their very limited adaptation options and the resulting threat to related traditional knowledge. Following this it was emphasized that the benefits from climate change for certain species may not be permanent. For example some areas are experiencing high cod fish availability as the cod move northwards searching for colder waters, however, with further warming, the fish will continue to move out of these areas and even further north. As such there is a need for adaptive management and flexibility in adaptation planning.

(c) Monitoring of the threats to biodiversity and biodiversity-based livelihoods in the Arctic of likely climate-change impacts and response

52. Mr. Tero Mustonen, researcher and Head of International Affairs within the Snowchange Cooperation, introduced the item. In his presentation Mr. Mustonen highlighted threats from climate change in terms of lost traditional knowledge. Mr. Mustonen also drew a link between losses in traditional knowledge and indigenous languages and the challenges of monitoring biodiversity and biodiversity-based livelihoods.

53. Finally Mr. Mustonen highlighted a number of successful examples of monitoring experiences, which have considered traditional knowledge, such as the Arctic Climate Impact Assessment and called for further efforts to bring the voices of indigenous peoples to policy planning and decision-making.

54. Participants then formed small groups to discuss this item in more detail. In their report back to the plenary, the small groups highlighted some of the ongoing monitoring activities in Arctic indigenous communities. The group highlighted that many aspects of Arctic biodiversity are being monitored informally on a daily basis as an inherent part of traditional livelihoods and activities while many large scale scientific monitoring programmes continue on sea-ice and habitat change. The group identified a gap in terms of linking informal daily monitoring to large-scale scientific studies: some solutions proposed by the group include the collection of community testimonies, the development and adoption of conflict resolution mechanisms.

55. The group also discussed the current uses of traditional knowledge of biodiversity for monitoring. In particular the group revealed that indigenous communities already use informal monitoring in order to adapt use patterns in response to perturbations. Furthermore, the group revealed that indigenous peoples have used ‘un-validated’ data for generations to manage hunts, fish catches, herding patterns, etc. Indigenous communities are, in some cases, using biodiversity data to ensure their rights (e.g. to hunts). Participants also expressed that using science to validate traditional knowledge was not in the spirit of article 8(j) of the Convention which requests parties to respect traditional knowledge.

56. Finally the group presented a number of guiding principles and recommendations for monitoring the threats to biodiversity in the Arctic in a manner that respects traditional knowledge related to biodiversity, as presented in annex II.

57. Discussions following the presentation emphasized that examples of community based monitoring already exists, however these should be further expanded. Further discussions emphasised the need for enhanced dialogue between indigenous peoples and scientists based on existing successful models.

(d) Indicators or predictions of the effects on ecosystems of climate-change impacts or response activities

58. Ms. Violet Ford, Vice President of the Inuit Circumpolar Council Canada Office, introduced the item and emphasized the need for indicators to be developed in partnership with indigenous peoples. Ms. Ford informed participants that indigenous peoples are already developing indicators and targets for the CBD and specifically for traditional knowledge.

59. Participants then formed small groups to discuss this item in more detail. In their report to the plenary the small groups identified a number of potential indicators on the impacts of climate change on ecosystems and livelihoods in the Arctic as presented in annex III. With regards to the indicators, the group emphasized the need for (i) indicators to link to existing community monitoring measures and (ii) flexibility in the selection of indicators based on community circumstances.

60. The group further identified some potential socio-economic and cultural impacts of climate change response activities which may require the development of indicators including: the feeling of involvement and control among indigenous peoples (fate control), overall trends in community well-being under changing climatic conditions, the impact of climate change response activities on indigenous and local community rights and the ability of communities to develop their own climate change response activities.

61. Discussions following the presentation called for a region-specific approach to the development and application of indicators building on existing programmes and indicator frameworks, including pilot Arctic projects for testing indicators. Discussions further acknowledged existing decisions on indigenous peoples and highlighted the difficulty in formalizing new indicators within the CBD process.

3.4 Observed and potential impacts of the measures on biodiversity-related traditional knowledge and indigenous and local communities in the Arctic region: The risks and consequences of climate change, mitigation and adaptation solutions on ecosystem services and human well-being;

62. Participants presented a number of examples of adaptation activities already being implemented by indigenous peoples including:

- Moving fishing sites closer to shore in response to reductions in thickness of lake ice so as to ensure safety;
- Shifting winter pastures in response to changing ice and snow conditions in order to access grazing;
- Hunting only once a year instead of twice and building community cold storage to meet resulting increased quantities and changing timing of supply;
- Shifting from walrus skin boats to fabric boats due to difficulty in finding suitable walrus because of a shortened season in spring due to early ice recession.

63. Participants also emphasized that adaptation by indigenous peoples is developed through observations, community discussions and daily decision-making (consensus) rather than through a formal long-term planning process. Participants also noted that some of the adaptation activities, which are being implemented, are eroding traditional knowledge.

64. Additional examples are presented in the form of case-studies in annex IV.

ITEM 4. THE WAY FORWARD

4.1 Critical knowledge and capacity-building needed to support implementation, including inter alia, scientific research, availability of data, appropriate measurement and monitoring techniques, technology and traditional knowledge

65. Mr. Gonzalo Oviedo, Senior Adviser for Social Policy within the International Union for the Conservation of Nature introduced the item highlighting the magnitude of climate change in the Arctic and the constraints faced by indigenous peoples. Mr. Oviedo emphasised that despite many international processes supporting capacity building, there are few examples linking traditional knowledge to capacity building programmes relevant to climate change mitigation and adaptation at the national and local levels.

66. Further knowledge gaps identified by Mr. Oviedo include: the link between climate change impacts and the factors of increased social vulnerability of indigenous peoples, the changes affecting freshwater ecosystems and the availability of water, and governance requirements for climate change adaptation. Finally, Mr. Oviedo reminded participants that climate change is offering an opportunity for the enhanced sharing and valuing of local knowledge.

67. Ms. Maiken Pollestad Sele from the International Federation of Organic Agricultural Movements (IFOAM) provided an additional introduction highlighting organic (sustainable) agriculture as a link between traditional knowledge and science, as well as a strategy to both mitigate and adapt to climate change, mentioning examples of how organic agricultural methods provide more resilient soils, thereby substantially contributing to food security, with reference to the positive research results from the FAO Conference on Organic Agriculture and Food Security in May 2007.

68. Discussions highlighted human, institutional and legislative capacity needs including:

- Support to traditional education including nomadic schools as an important tool to preserve traditional knowledge relevant for climate change adaptation;

- Enhancing awareness and knowledge of climate change and associated national processes within indigenous peoples;

- Data management, including with regards to traditional knowledge reflected in scientific research and the CBD clearing house mechanism;

- Enhancing awareness among researchers of traditional knowledge rights and ethical research practices when working with indigenous peoples.

69. Additional discussions revealed a significant short-coming with regards to partnerships between indigenous peoples and scientists. In particular, many indigenous peoples provide information to scientists without receiving information on the findings. Furthermore, when traditional knowledge is gathered, it is often presented by scientists without due credit given to the holders of knowledge. Additionally, most of the knowledge developed through research conducted in the Arctic is not held in the region but rather in research institutions outside the Arctic. This often extends to legal protection over knowledge granted to researchers rather than the owners who are indigenous peoples. Indigenous participants emphasized the need for reciprocity.

70. Finally, participants identified obstacles to the further integration of traditional knowledge into decision-making on climate change and biodiversity in the Arctic including: lack of adequate protection for traditional knowledge, limited capacity for indigenous communities to participate in international research efforts such as the International Polar Year, the lack of centres of knowledge / research within the Arctic itself, the lack of legal consideration of traditional knowledge, weak links between indigenous peoples and scientific bodies in international processes, such as the Subsidiary Body on Scientific Technical and Technological Advice of the Convention on Biological Diversity, the Subsidiary Body for Scientific and Technological Advice of the United Nations Framework Convention on Climate Change and the Committee on Science and Technology of the United Nations Convention to Combat Desertification, and weak integration of capacity building for indigenous peoples within national adaptation strategies.

4.2. The ecosystem -approach principles and guidance and the precautionary approach

71. Ms. Susan Stone, Senior Advisor on Indigenous and Traditional Peoples Initiative from Conservation International, introduced the item reminding participants of the guiding principles of the ecosystem approach, particularly principle 11 which calls for the consideration of all relevant information including indigenous and local knowledge, innovations and practices. Ms. Stone also presented the operational guidance for the application of the ecosystem approach and called on participants to discuss how these principles and guidance can best be applied to address the impacts of climate change on indigenous peoples and their associated traditional knowledge in the Arctic.

72. Finally, Ms. Stone introduced participants to the precautionary approach, as guidance to the application to the ecosystem approach, emphasizing that the precautionary approach should be applied to prevent actions that are inequitable to present or future generations.

73. Discussions confirmed that the ecosystem approach is relevant for indigenous peoples addressing the impacts of climate change on traditional knowledge related to biodiversity in the Arctic. Participants noted, however, that the application of the ecosystem approach is not consistent within countries, in part, due to the fact that many of the principles are difficult to translate to on-the-ground actions. It was anticipated that this difficulty would be further exacerbated during the application of the ecosystem approach to climate change responses since climate change responses are complex. Furthermore, some indigenous representatives raised concern pertaining to the strength of principle 11.

74. Participants suggested that there is a need to enhance awareness and understanding of the ecosystem approach both among indigenous peoples and within the climate change community. This could be accomplished through the development of (i) concrete steps and actions to apply the ecosystem approach to climate change response activities and (ii) explanatory notes on how the ecosystem approach can be applied to climate change response activities.

75. Finally participants recognized the limitations of the ecosystem approach in so far as it is tied to national policy and, as such, cannot be applied effectively to climate change if policy is restricting the adaptive capacity of indigenous peoples at the local level. Furthermore, there may be inconsistencies between indigenous and local community classifications of boundaries and uses and those used in the application of the ecosystem approach.

ITEM 5. OTHER MATTERS

76. Many of the agenda items discussed at the meeting build on recommendation XII/5 of the SBSTTA. In considering these agenda items during the meeting, participants noted that SBSTTA recommendation XII/5 paragraphs 1(a) and 1(b) on the enhanced integration of climate change considerations related to biodiversity within the Convention do not fully reflect the needs, priorities and opportunities identified during the meeting.

77. Particular gaps that participants identified include: consideration of the vulnerability of traditional knowledge related to biodiversity to the impacts of climate change, support for mechanisms whereby traditional knowledge can contribute to the enhanced integration of climate change considerations related to biodiversity, and a call for the inclusion of indigenous peoples in processes to integrate climate change as a cross-cutting issue within national biodiversity strategy and action plans.

78. Finally, participants working on relevant projects presented their work and responded to questions and comments under this agenda item. Mr. John Niklas Labba, from the Saami Parliament, presented on the main aspects of reindeer herding and associated traditional knowledge. Dr. Igor Ryzhov presented the ECORA project. A short description of this project is available in annex IV.

ITEM 6. ADOPTION OF THE REPORT (CONCLUSIONS AND RECOMMENDATIONS)

79. Participants adopted the conclusions and recommendations of the meeting, which will be submitted as an Information Note to the consideration of the Conference of the Parties at its ninth meeting.

ITEM 7. CLOSURE OF THE MEETING

73. The expert meeting closed at 5 p.m. on Friday, 28 March 2008.

Annex I

RECOMMENDATIONS

The participants recommend:

Capacity-building

1. That since the Arctic is experiencing accelerated climate change and since it is contained within eight countries, that pilot projects be developed, possibly through the Arctic Council, linking biodiversity and the impacts and responses to climate change;

2. The further elaboration of the concepts of flexibility, vulnerability and resilience as they apply to the social and physical impacts of climate change on Arctic indigenous peoples and their traditional knowledge of biological diversity, recognizing that resilience and ability to adapt are closely linked to the recognition of human rights including fate control;

3. In recognition of the value of lessons learned from climate change response measures implemented by indigenous peoples in the Arctic, that the CBD and other relevant bodies compile and disseminate such lessons learned and good practices while recognizing the rights of the holders of such knowledge;

4. The enhancement of the availability, within indigenous communities, of information on international processes relevant for climate change and biodiversity bearing in mind limitations related to access to technology and language and the importance of the effective participation of indigenous peoples;

5. The identification and promotion of co-management practices of species and ecosystems in the Arctic that enhance the adaptive capacity of biodiversity and indigenous peoples;

6. Recognizing that there exist specific vulnerable groups such as women within vulnerable communities, to conduct further research to consider such specific vulnerabilities and appropriate responses in light of climate change and climate change response activities;

7. The encouragement of International bodies and National governments to support Indigenous Education, specifically nomadic schools, as useful strategies to promote the transmission of traditional knowledge relevant for biodiversity, climate change and climate change response activities;

8. The enhanced awareness of the possible risks and benefits arising from agricultural developments in the Arctic, in response to climate change, in order to enhance sustainability;

Equitable Partnerships

9. The development of processes to link local level adaptation, including associated traditional knowledge, to national planning;

10. The development of research models that value and integrate traditional knowledge, practices and innovations, with the approval of the knowledge holders, early in the process of scientific research, including in the formulation of research questions;

11. The building of equitable long-term partnerships between indigenous peoples and research institutions using the International Polar Year as an opportunity to initiate such partnerships;

12. The development of codes of conduct for research, whereby knowledge generated from research in the Arctic indigenous communities remains in the Arctic;

13. The building of capacity of indigenous communities to develop proposals to the private sector and financial organizations for future opportunities for projects devoted to the assessment of climate change impacts in the Arctic and for community-based adaptation;

Monitoring

14. To ensure that the impacts of climate change on food security in indigenous peoples are reflected in assessments of climate change responses, bearing in mind that these may not be well reflected in current monitoring / reporting systems and assessments;

15. That identification and monitoring of the status of 'keystone' species and important habitats for indigenous livelihoods in the Arctic be done in collaboration with indigenous peoples using both traditional knowledge and science in respectful and equal partnerships;

16. The establishment of pilot programmes for indigenous monitoring of biodiversity based on locally and regionally defined criteria, indicators and monitoring systems;

17. The compilation and dissemination of best practice indigenous monitoring systems on the impacts of climate change on biodiversity;

18. The development of community based monitoring programmes to assess the impacts of climate change on biodiversity, including programmes which facilitate contributions in indigenous languages;

19. The establishment of a mechanism for the validation of both traditional knowledge and scientific information at the community level on the impacts of climate change on biodiversity;

20. The development of processes where indigenous peoples are involved in the collection of data and information used for adaptation planning at all levels;

Ecosystem Approach

21. The development of guidance for the application of the ecosystem approach to climate change response activities;

22. The establishment of pilot programmes for the application of the ecosystem approach to climate change response activities in the Arctic in collaboration with indigenous peoples, noting the relevance and usefulness of the Akwe:Kon Guidelines;

Follow-up Actions

23. To share the recommendations and outcomes of this meeting with relevant United Nations and other international organizations including, *inter alia*, the Food and Agriculture Organization of the United Nations, the World Health Organization, the United Nations Environment Programme, the International Strategy for Disaster Reduction, the United Nations Permanent Forum on Indigenous Issues, the United Nations University Traditional Knowledge Centre, the Arctic Council, the Global Environment Facility, the World Intellectual Property Organization, the World Meteorological Organization, United Nations Forum on Forests, the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification and other national and regional organisations as appropriate;

24. To consider building on this initial meeting and report, for future meetings on related issues, in possible partnership with the Arctic Council with the aim to produce a publication to inform and enhance climate change response activities in the Arctic region.

Annex II

GUIDING PRINCIPLES FOR MONITORING THE THREATS AND POTENTIAL IMPACTS OF CLIMATE CHANGE ON BIODIVERSITY

1. Establish data sharing on indigenous and local community terms

2. Need to systemize community-based monitoring as a component for management

3. Governments and academic institutions need to address political implications of intellectual property rights

4. Recognize that there are different types of knowledge in the Arctic (including scientific knowledge and various types of traditional knowledge) and give equal political value to each

5. Explore uses / opportunities for community-based monitoring: use of tools such as identification tables distributed in indigenous and local communities (including schools)

6. Ensure that communities have access to the compiled and analyzed data

7. Facilitate data gathering and analysis in local languages since these languages are better able to convey details on threats, impacts, and trends (also same species have different names)

8. Recognize that there are multiple human impacts in the Arctic

9. Recognize that monitoring is inextricably linked to decision-making

10. Ensure that scientific monitoring is validated by indigenous peoples

11. Recognize that indigenous communities are able to provide data and monitoring on a whole system rather than small sections / sectors

Annex III

PROPOSED POSSIBLE INDICATORS OR PREDICTIONS OF THE EFFECTS ON ECOSYSTEMS OF CLIMATE CHANGE IMPACTS OR RESPONSE ACTIVITIES

Indicators on the Impacts of Climate Change on Indigenous Peoples, Traditional Knowledge and Biodiversity

Change in land use and livelihoods (area needed, distances travelled, etc.)
Change in harvesting / herding patterns (timing, area used, success etc.)
Observations of animal health (quality of meat, size of fish, etc.)
Adoption of new technologies as adaptation measures
Increase in climate associated risks / accidents / fatalities in indigenous peoples
Community optimism / confidence in adaptive capacity
Long-term changes recognized by elders

Indicators on the Impacts of Climate Change Mitigation Measures on Indigenous People, Traditional Knowledge and Biodiversity

Area of traditional territories used for mitigation activities
Number of mitigation activities including Impact Benefit Agreements
Number of mitigation activities developed and implemented with the full and effective participation of indigenous peoples
Additional income / costs for the community
Number of mitigation activities including full carbon accounting covering emissions from changing patterns of land use for indigenous peoples (travel to hunts, etc.)

Indicators on the Indirect Impacts of Climate Change Response Measures on Indigenous Peoples, Traditional Knowledge and Biodiversity

Increased access to traditional territories (flights, roads, ships, etc)
Benefits from tourism (number of visitors / hotels / tours vehicles / indigenous owned businesses, employment)
Increased exploitation of natural resources (% of people employed / unemployed / involved in the traditional economy)

Participation by Indigenous Peoples in National and International Climate Change Policy

Number of indigenous participants in national delegations / SBSTTA / COP
Number of environmental impact assessments on climate change response activities including the full and effective participation of indigenous peoples
Number of national adaptation strategies developed and implemented with the full and effective participation of indigenous peoples

Participation by Indigenous Peoples in Climate Change Research

Number of research projects on climate change in the Arctic with a traditional knowledge component
Availability of results of research / impact assessments by indigenous peoples
Participation of indigenous peoples in framing climate change research
Number of private sector climate change response strategies developed and implemented with the full and effective participation of indigenous peoples
Number of research projects in the Arctic
Community awareness or interest in climate change

Annex IV

CASE-STUDIES OF ADAPTATION ACTIVITIES ALREADY BEING IMPLEMENTED BY INDIGENOUS AND LOCAL COMMUNITIES

1) Snowchange Cooperative:

Snowchange Cooperative is a non-profit organisation in Finland. Its main goal is to maintain a community network across the Arctic focusing on traditional knowledge and climate change. Snowchange Cooperative has partner communities from Siberia to Alaska. It contributed traditional knowledge and climate change observations of the Saami people to the Arctic Climate Impact Assessment (ACIA) in 2004. It is a priority for Snowchange Cooperative that, in order to be able to survive through climate change impacts in the North, the traditional knowledge and languages need to be revitalized at the community level. Source: www.Snowchange.org

2) Chukchi Community:

Melting of continuous permafrost in the North-east corner of Siberia, Russian Federation, is a reality and its impacts are already being observed. Lakes are disappearing, new severe floods are occurring, and there is rapid new erosion on the riverbanks of the Kolyma river. The lower Kolyma region is also the home land of the Chukchi community of Nutendli. This community is living from age-old reindeer nomadic herding. Since 1991, it has become an autonomous indigenous community. In order to survive through the changes that modernity and now climate changes imposes on them and their world, Nutendli community acts to prioritize the survival of traditional knowledge, spirituality and language. This manifests in a unique attempt to provide education to the children of the community by means of a nomadic school. This historical attempt has very few parallels in the contemporary Arctic region. The community believes that they are able to build a relationship to the rapid changes of their land around them as long as their knowledge and beings survive. Nutendli is a partner in the Snowchange Cooperative.

3) Observations from native hunters of the Native Village of Gambell, Alaska:

Changes were first observed during the 1970s and 80s. Lakes and ponds in the Tundra are draining underground. Erosion is beginning in different places including beach areas, hills, and mounds facing the sea, and is intensified by storms and storm-induced high tides. These changes occurred during an El Nino event.

Migration, nesting, moulting, feeding, and other patterns and habits of birds started changing; geese such as emperors and brant still come but hardly moult in the usually area, squaw ducks by the thousands that used to daily migrate in the mornings and evenings north/south have discontinued this behaviour although some are still present, murres seem to be decreasing, especially on cliff rookeries 30 miles south of the village whilst numbers increase offshore, other birds such as cormorants, sea gulls, loons are staying longer in Fall and arriving earlier in Spring and other birds such as auklets and eider ducks seem to be maintaining the status quo so far.

Generally the sea ice now arrives later and recedes/melts earlier, most of the ice now is seasonal and forms only in Winter, the floe of multi-year chunks of ice and icebergs that spit out of the Arctic Chukchi region in early Fall into the Bering Sea does not happen anymore. The ice now behaves differently – tending to move in one big mass near the shore without open leads, the larger ice floes (floating ice islands) that crack open in the middle or in between – forming large open leads ideal for whaling and other hunting do not occur as much with this kind of ice.

The changes in the weather and ice conditions result now in changes in animal behaviour, habit, and migration: during Spring, walruses are now seen hauled out individually on small pieces of ice instead of large herds on larger pieces of ice, some animal migrations now seem to take place at the eastern side of

the island instead of in the strait (western side) and northwest of Saint Lawrence Island, the Fall seals are now hunted on a different schedule, it is now hard to get tomcod and blue cod in Winter ice fishing, and all this results in shorter Spring harvest.

In addition, a warm ocean flow into the Chukchi and Arctic oceans in late fall and early Winter is very much evident now as shown on satellite ice maps when the ice starts to form elsewhere. Although winters now are generally warmer, 2007/8 was colder than most winters. The weather is more unpredictable with extremes and dangers resulting in accidents and losses of life.

The warmer climate so far has also resulted in some good things: the marine mammals hunted appear to be in good health, the bowhead whale continues in good numbers with good population growth, harvesting of whales occurs in fall/winter for several years now, harvesting of all species of salmon now occurs in summer, the cod previously depleted by commercial fishermen are back in local waters, and berries continue to grow as well as other plants and roots gathered for food.

Growing concerns include increased offshore oil exploration, increased shipping traffic, and increased concern for the marine environment, the resources and the hunt. Some villages may need to be relocated because of increased erosion and risk of extreme climatic events. Snow change patterns are causing alarm and lead to increased accidents. Indigenous peoples, especially Elders, recognise changes happening and continue to have respect and concern for nature and the animals. Weather and conditions have always interfered with livelihoods but many times, the community now comes home empty handed, but remembers what the Elders have taught them – to be patient and respect both the Elders and Nature.

4) ECORA – Integrated Ecosystem Approach to Conserve Biodiversity and Minimize Habitat Fragmentation in the Russian Arctic

The aim of the ECORA project is to implement integrated ecosystem management, conservation of biodiversity and minimize fragmentation in Western, Central and Eastern sectors of the Russian Arctic. One of the main focuses of the project is the participation of indigenous people and local communities in decision-making policies concerning the use of biological resources. The current state of biodiversity and threats to its integrity are evaluated on the basis of research observations in key species. The observations focus on waterfowls, marine birds and mammals, wild and domestic reindeer.

The project's experts representing local populations of the Evenk, Chukcha, and Yukagir Peoples show special interest in issues such as the state of wild reindeer herds in the Kolyma model area, their influence upon domestic reindeer herds, and relationships with predators, competition for pastures. These experts also serve as a unique source of knowledge of the polar bears' habits. Local inhabitants also point at the impacts of climate change. In particular, they mention that traditional times of hunting and fishing seasons shift, autumn storms gain more strength and erode sea shores, sea ice forms later, gaps between the shoreline and sea ice borders increase in summer, leading to overcrowding of walruses on dry land.

Annex V

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