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Matters relating to Article 4, paragraphs 8 and 9, of the Convention
Progress on the implementation of decision 1/CP.10

Report on the workshop to identify challenges and gaps in the implementation of risk management approaches to the adverse effects of climate change

Note by the secretariat

Summary

This report provides a summary of the workshop to identify challenges and gaps in the implementation of risk management approaches to the adverse effects of climate change, held in Lima, Peru, from 10 to 12 October 2011. The workshop discussions focused on recent developments and lessons learned in the different aspects of the risk management process, including: (a) risk assessments for informed decision-making; (b) risk reduction: planning and preparation; and (c) risk sharing, pooling and transfer in the context of adaptation. The report includes a summary of: the key issues addressed at the workshop; the gaps and challenges in the implementation of risk management approaches; and perspectives on the potential role of the Convention in addressing the range of risk management approaches.

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Contents

I. Introduction

A. Mandate

1. The Subsidiary Body for Implementation (SBI), at its thirty-third session, requested the secretariat to organize a workshop to identify challenges and gaps in the implementation of risk management approaches to the adverse effects of climate change, building on the lessons learned and practical experience of international, regional and national organizations and the private sector. The SBI further requested the secretariat to make the report on the workshop available for consideration by the SBI at its thirty-fifth session.[1]

2. The SBI, at its thirty-fourth session and in the context of the work programme to address loss and damage associated with climate change impacts, agreed to consider, at subsequent sessions, additional activities to be undertaken under the work programme by taking into account, as appropriate, the outcomes of the workshop.[2]

B. Scope of the note

3. This report draws upon the presentations and discussions at the workshop[3] and contains:

(a) A description of the workshop proceedings (chapter II);

(b) A summary of the key issues addressed during the introductory and thematic sessions of the workshop (chapter III);

(c) A summary of the key gaps and challenges in the implementation of risk management approaches to the adverse effects of climate change (chapter IV);

(d) A summary of perspectives on the role of the Convention in addressing the range of risk management approaches (chapter V).

C. Possible action by the Subsidiary Body for Implementation

4. The SBI may wish to consider this report at its thirty-fifth session, together with the outcomes of other interim activities, in its general consideration of the progress of the implementation of decision 1/CP.10.

5. The SBI may also wish to consider, as appropriate, the information provided in this report in its consideration of additional activities to be undertaken under the work programme to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change.

II. Proceedings

6. The workshop to identify challenges and gaps in the implementation of risk management approaches to the adverse effects of climate change took place in Lima, Peru,

[1] FCCC/SBI/2010/27, paragraph 86.
[2] FCCC/SBI/2011/7, paragraph 115.
[3] The relevant documentation related to the workshop is available at <http://unfccc.int/6094>.

from 10 to 12 October 2011. It was organized by the secretariat in collaboration with the Ministry of Environment of Peru and the United Nations International Strategy for Disaster Reduction (UNISDR). The Government of Switzerland provided financial support. The workshop was chaired by Mr. Samuel Ortiz Basualdo, Vice-Chair of the SBI.

7. The workshop was attended by 81 representatives from Parties, United Nations, international, regional and national organizations, civil society, the private sector and research/academic institutions active in the areas of disaster risk reduction (DRR) and climate-related disaster risk management (DRM), including financial and developmental aspects, at all levels.

8. The workshop was opened by the Minister of Environment of Peru, Mr. Ricardo Giesecke, and was followed by an introductory session (session 1), consisting of two parts. The first part included presentations on the evolution of the topic of climate risk management in the context of the Convention process, an overview of the Intergovernmental Panel on Climate Change (IPCC) *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (SREX)[4] and basic concepts associated with the risk management process. The second part consisted of the sharing of participants' views on their expectations and possible outcomes of the workshop, followed by two presentations providing national perspectives on the risk management practice.[5]

9. Three thematic sessions were subsequently held, each focusing on different aspects of the climate-related risk management process, namely: risk assessments for informed decision-making; disaster planning, preparation and decision-making; and risk sharing, pooling and transfer in the context of adaptation (sessions 2–4). Each session included presentations by expert organizations on the latest developments at the international and regional levels in the respective thematic areas and presentations by Parties on national perspectives and current practices at the national and/or subnational levels. Session 3 included a participatory exercise which provided an interactive space for shared learning on different aspects of the decision-making process in the face of uncertainties and the consequences of decision-making in the context of potential climate-related risks, such as flood or drought.

10. Session 5, on the way forward, started with a panel discussion by Parties to exchange views on the role of the Convention in addressing the range of risk management approaches, from assessment to response. Taking into consideration inputs from the thematic sessions, a discussion also took place within a breakout group to summarize the gaps and challenges in the implementation of risk management approaches as well as the opportunities to address them both within and outside the Convention process. The session concluded with a plenary discussion, which included a summary of the deliberations from each group and a presentation reviewing some of the key points of the three-day workshop. The workshop concluded with closing remarks by the chair of the workshop and the host Government.

11. On the margins of the workshop, three side events were held on the following topics:

(a) Climate risk management in high Andean communities of Peru, hosted by the United Nations Development Programme Peru office;

(b) Accounting for loss and damage from climate-related events, hosted by UNISDR;

[4] The summary for policymakers is available at <http://ipcc.ch/news_and_events/docs/ipcc34/SREX_FD_SPM_final.pdf>.

[5] All the presentations given at the workshop are available at <http://unfccc.int/6094>.

(c) What can insurance deliver for adaptation, hosted by the Munich Climate Insurance Initiative.[6]

III. Summary of the key issues addressed at the workshop

12. The participants represented a wide spectrum of adaptation stakeholder groups, which enabled the discussions to include the perspectives both of providers and of users of climate information, data, knowledge services, and tools, which support the implementation of the full range of risk management approaches at all levels. The inputs provided by Parties and expert organizations during the introductory and thematic sessions centred around the essential components of risk management: risk identification; risk reduction; risk financing; and disaster management.

13. Specifically, the participants were informed of the recent developments and key findings in understanding different types of risks, and the services and products available at the international level to support countries to identify and assess risks.[7] Regional centres in the Caribbean and the Pacific shared information on emerging work towards an integrated approach for managing climate-related risks at the regional level, as well as on the regional support tools and frameworks currently in place for adaptation and DRR.[8] Parties provided information on specific national experiences and the lessons learned on the application of risk management tools and approaches.[9]

14. Discussions were also informed by innovative risk transfer schemes currently in operation at different levels, including weather-index insurance products at the national level and regional risk pooling mechanisms in Africa and the Caribbean. Some participants from the private sector further provided perspectives on the roles of the public and private sectors in risk sharing, pooling and transfer.

15. This chapter of the report summarizes the key issues addressed during those sessions, which served as a basis for the discussion on gaps and challenges in the implementation of different risk management approaches.

A. Framing the discussion

Under the Convention process

16. The issues related to climate-related risk management have been addressed in different ways under the Convention process, ranging from the provision of Convention Articles[10] and decisions of the Conference of the Parties (COP)[11] as a basis for action, to the facilitation of learning and the exchange of relevant information through workshops and

[6] Presentations given at the side events are also available at the workshop webpage <http://unfccc.int/6094>.

[7] Inputs were provided by the Consortium Evaluación de Riesgos Naturales – America Latina, UNISDR and the World Meteorological Organization.

[8] Inputs were provided on the regional perspectives by the Asia-Pacific Network for Global Change Research, the Caribbean Community Climate Change Centre, the Caribbean Disaster Emergency Management Agency and the Secretariat of the Pacific Regional Environment Programme.

[9] Presentations on the national perspectives were made by Canada, Peru, the Philippines and Switzerland.

[10] Article 4, paragraph 8, of the Convention and Article 3, paragraph 14, of the Kyoto Protocol.

[11] Key relevant decisions include: decisions 5/CP.7, 1/CP.10, 2/CP.11, 1/CP.13 and 1/CP.16.

expert meetings,[12] as well as the dissemination of knowledge on good practices, measures and tools through user-friendly information products.[13]

17. In particular, the Nairobi work programme on impacts, vulnerability and adaptation to climate change, through one of its work areas, climate-related risks and extreme events, promotes understanding of impacts of, and vulnerability to, climate change, current and future climate variability and extreme events, and the implications for sustainable development.[14] The Nairobi work programme has been catalysing action on adaptation, including action regarding climate-related risk management, by engaging approximately 80 organizations involved in DRM work at different levels and in various sectors.[15] These partner organizations have been undertaking action in response to the region-, country- and/or sector-specific gaps and needs regarding climate-related risk management that are identified by Parties.

18. Through these provisions, the Convention process has been creating enabling conditions to facilitate implementation of actions at the national, regional and international levels in enhancing climate-related risk management. Taking into account the outcomes of this work, the COP, at its sixteenth session, set up the Cancun Adaptation Framework, under which it established a work programme to consider approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change.

Basic concepts of the disaster risk management (DRM) process

19. Risk, as described in a number of presentions, is the product of physical hazards, and exposure and vulnerability; as such, it is location- and context-specific and is socially determined/constructed on the basis of existing or expected future physical conditions.

20. DRM, as explained by Social Programme for Environmental and Disaster Risk, Latin America Social Science Faculty (FLASCO), comprises a process and a method for dealing with disaster risk and its derivatives. Its objectives are: (a) to reduce existing risk through action that reduces hazards, exposure or vulnerability (referred to as corrective DRR); (b) to anticipate and avoid future risk by preventing the creation of new hazards,

[12] Examples of workshops and expert meetings include: the workshop on insurance and risk assessment in the context of climate change and extreme weather events (held on 12–13 May 2003 in Bonn, Germany; the report is contained in document FCCC/SBI/2003/11); expert meeting of the small island developing States (held on 5–7 February 2007 in Kingston, Jamaica and on 26–28 February 2007 in Rarotonga, Cook Islands; the report is contained in document FCCC/SBI/2007/11); the workshop on climate-related risks and extreme events under the Nairobi work programme on impacts, vulnerability and adaptation to climate change (held on 18–20 June, 2007 in Cairo, Egypt; the report is contained in document FCCC/SBSTA/2007/7); the technical workshop on integrating practices, tools and systems for climate risk assessment and management and disaster risk reduction strategies into national policies and programmes (held on 10–12 March 2009 in Havana, Cuba; the report is contained in document FCCC/SBSTA/2009/5); and the in-session workshop on risk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance (held on 4 December 2008 at COP 14; the report is contained in document FCCC/AWGLCA/2008/CRP.7).

[13] Key relevant knowledge products include: the technical paper on mechanisms to manage financial risks from direct impacts of climate change in developing countries (FCCC/TP/2008/9); the technical paper on integrating practices, tools and systems for climate risk assessment and management and strategies for DRR into national policies and programmes (FCCC/TP/2008/4); the technical paper on physical and socio-economic trends in climate-related risks and extreme events, and their implications for sustainable development (FCCC/TP/2008/33); and the background papers to the relevant workshops and expert meetings.

[14] Information on the previous work undertaken under the work area on climate-related risks and extreme events are available at <http://unfccc.int/3952>, and on the Nairobi work programme in general <http://unfccc.int/nwp>.

[15] Information on the partner organizatons are available at <http://unfccc.int/5005>.

exposure and/or vulnerability (referred to as prospective DRR); and (c) to address residual risk that has not been reduced or eliminated. Preparing for and dealing with disaster once it occurs is increasingly referred to as compensatory disaster management.

21. Understanding the risk (e.g. identifying and different types of) is therefore a critical first step in reducing future damage and losses,[16] which requires governments to have comprehensive data on risk indicators in order to understand and subsequently identify the most appropriate and cost-effective DRM strategies (e.g. risk reduction, risk financing) according to the different types of risk. Similarly, it therefore becomes essential for countries to determine acceptable levels of risk in order to design appropriate strategies, tools and mechanisms to address them.

22. The presentations broadly highlighted three possible strategies with regard to risk financing: retaining the risk; insuring the risk; and transferring the risk to capital markets. As stressed by the Consortium Evaluación de Riesgos Naturales – America Latina (ERN-AL) and others, the extent of risk to retain and to transfer is ultimately a political decision. Risk transfer or risk sharing mechanisms become more significant in a high and intensive risk context where significant risk reduction is difficult due to the magnitude of probable events or the exposure and vulnerability.

23. With regard to managing risk at the national level, Peru, reporting on multiple recent inititatives in DRM and adaptation,[17] stressed the importance of closing the gaps between the various initiatives developed by different ministries in the country. Switzerland, referring to its current experience and the associated lessons learned, reported on the cost-effectiveness of ex ante investment in preventive measures such as land-use planning and early warning systems, or evacuation plans to reduce residual risk. Findings from the UNISDR *Global Assessment Report on Disaster Risk Reduction: Revealing Risk – Redefining Development* (GAR 2011) also confirmed that land-use planning and design have a cost-benefit ratio of 1:4 in terms of corrective investment. In this context, UNISDR highlighted the importance of incorporating risk in public investments in order to reduce the risk portfolio.

B. Risk assessments for informed decision-making

24. Risk assessments are an essential part of informed decision-making for developing strategies to reduce risk. An overview of the risk assessment landscape presented by the World Meteorological Organization (WMO) and UNISDR confirmed that the majority of impacts and losses experienced in the world today are due to hydrometeorological events, all of which will be affected by climate change. According to the analysis on the types of losses reported by the WMO, loss of life from hydrometeorological disasters is decreasing, while economic losses are increasing.

[16] The presentations introduced the current work on identifying risks, such as the World Bank Global Facility for Disaster Reduction and Recovery (WB/GFDRR), which has financed over 40 regional, national and city-level risk assessments to help countries understand their type of risk and the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), which carried out the most extensive study of disaster and climate risk in the Pacific region to support governments in the decision-making process.

[17] Information on Peru's shared initiatives includes: the creation of the National System for Disaster Risk Management; the creation of the Centre for National Prevention of Disasters; the updating of the National Adaptation Strategy, taking risk management into account; the implementation of adaptation projects to tackle the impacts of the rapid retreat of the tropical glaciers in the Andes region; and DRM projects in the areas vulnerable to extreme meteorological events.

25. Assessing risks requires various steps, including hazard analysis and mapping, analysis on exposure and vulnerability, and estimation of potential losses (e.g. livelihoods, infrastructure, human lives and ecosystems). Reliable hydrometeorolgical data (both historical and real-time data) are therefore essential parts of assessments. Accordingly, participants noted that further efforts to improve the amount and quality of data on impacts, losses and damage are essential in view of the growing losses and insignificant level of investment in DRM.

26. Based on an analysis using exceedance curves,[18] which map losses against return periods, the presentation by ERN-AL drew attention to the fact that there is not necessarily an exact correlation between the number of extreme events, economic losses and total loss of life. Similarly, GAR 2011, drawing on an analysis using exceedance curves, also reveals important insights into the evolution of losses over time, the exposure of populations, trends relating to mortality and economic losses, and data linking vulnerability to developmental indicators.[19]

27. ERN-AL and UNISDR, referring to the analysis of hybrid loss exceedance curves for Colombia, Mexico and Nepal, also highlighted the large scale of recurrent losses from small and medium-sized climatic events (resulting from extensive risks), which may be overlooked.[20] Participants noted that, in general, it is more cost effective to invest in reducing the more extensive risk strata, using a mix of prospective and corrective DRM strategies, rather than absorbing the losses, as shown by the cost–benefit ratios of different DRM strategies presented at the workshop.

28. Risks increase not only through a higher level of exposure due to intensified or more frequent natural hazards but also through increased vulnerability. For example, while hurricanes are considered an extreme event that can generate extreme impacts, small, high-frequent, non-extreme events such as floods as a result of excessive rainfall may also produce extreme disasters in urban and rural areas. The recurrent damage to the livelihood assets, coping capacity and resilience of populations that are affected by continuous smaller-scale loss can, as stressed by FLASCO, lead to a greater probability of large-scale disaster in the future.

29. To this end, reducing the existing vulnerabilities is therefore an effective approach to reducing future risks. Participants generally considered it essential to place the drivers of risk at the centre of DRM planning and that the key concern of climate-related risk management should be to reduce exposure and vulnerability in the wider context of sustainable development.

30. The importance of constantly evaluating DRM was also raised from the perspective that it is a social process with evolving and changing conditions. As such, a successful risk management strategy requires the bringing together of different social actors from different levels – from the community/local level to international actors.

C. Risk reduction: planning and preparation

31. Using the presentations on the current practices of managing risk at the regional and national levels as a starting point, participants discussed the potential synergies between

[18] Loss exceedance curves are normally used to express the probable maximum losses that can occur in a given period, or the probability of exceeding a given level of loss in a given period. The curves can also be used to estimate annual average loss, being the expected annual loss over the long term.

[19] Further information on GAR 2011 is available at <http://www.preventionweb.net/english/hyogo/gar/2011/en/home/index.html>.

[20] For further information on the loss exceedance curves, see the presentation given by the ERN-AL, available at <http://unfccc.int/6094>.

DRR and adaptation. The presentations, while confirming that progress has been made in reducing disaster risks in all countries and regions reported on at the workshop, stressed that further efforts are necessary to tackle the causes of vulnerability in the light of the trend of growing losses due to climate change.[21]

32. In addition to reporting on the current practices for risk management and its associated support, the presentations from regional- and national-level perspectives also discussed the conceptual similarities between adaptation and DRR and the interlinkages between different international and regional frameworks.

33. A risk management approach is considered a useful tool in the decision-making process regarding the implementation of adaptation solutions in the Caribbean. Accordingly, a number of initiatives and frameworks have been undertaken by the Caribbean Community Climate Change Centre (CCCCC) and the Caribbean Disaster Emergency Management Agency (CDEMA) to assist countries in the region in building resilience and reducing vulnerabilities, including through the implementation of a regional-level risk pooling scheme to deal with catastrophic events.[22]

34. The Secretariat of the Pacific Regional Environment Programme (SPREP) drew attention to the current situation in the Pacific island countries. While DRR and adaptation have many similarities, the risk management agenda has been driven by different sectoral, national, regional and/or international policy drivers that consider the issue in separate "silos". Consequently, synergies across the implementation process have not yet been fully achieved. This concern was echoed by WMO, which called for enhanced cooperation among different entities and frameworks in order to develop national strategies with a holistic view of the risk management framework.

35. The Philippines, reporting on its current practices, recommended improving the access to and availability of strategic knowledge that is localized to the country context and creating a data management and reporting system across different planning and implementing institutions that caters to different frameworks in order to improve information-sharing. Participants considered the country-level coordination of DRR and adaptation with all relevant stakeholders as a necessary step forward in that regard. Similarly, further enhancement of regional-level action was viewed as a useful way to support such country-level coordination, for example by developing regional framework for adaptation and DRM and providing opportunities for regional joint meetings of these two disciplines to facilitate multi-stakeholder discussions, in order to review information and identify opportunities to harmonize policy and address capacity gaps.

[21] For further information, see the presentations given by Canada, the Philippines, the Caribbean Community Climate Change Centre, the Caribbean Disaster Emergency Management Agency and the Secretariat of the Pacific Regional Environment Programme.

[22] These regional support efforts include: strengthening national capacity for modelling and downscaling; assessing the vulnerabilities of the key economic sectors of countries; preparing national and regional adaptation strategies; and mainstreaming climate change into regional DRM. Most recently, the *Caribbean Risk Management Guidelines for Climate Change Adaptation Decision Making* have been developed using a methodology based on the Canadian National Standard and deal specifically with climate change risks through the Comprehensive Hazard and Risk Management process developed and utilized by the South Pacific Island countries.

36. These suggestions were also in line with UNISDR six-step recommendations,[23] reported by CDEMA, for the integration of adaptation and DRR. In addition, encouraging development partners and donors to support the integrated implementation of adaptation and DRM was also considered helpful in that regard.

D. Risk sharing, pooling and transfer in the context of adaptation and examples of current experience

37. The inputs provided by experts from the insurance industry and regional climate risk pooling facilities informed the participants about the different types of risk financing options that are currently in practice or in planning, including contingent credit/funds, indemnity-based insurance, index-based insurance, catastrophe bonds, insurance-linked securities, reserves and savings. The presentations illustrated the ways in which global capital markets can absorb the financial exposure of catastrophes and how risk financing measures can be used to protect against risks that governments are unable to cover.

38. Despite the recent progress in financial innovations to respond to the funding needs to cover the large losses associated with natural disasters, Global AgRisk reported that most natural disaster risks are still covered by reinsurance companies, which reinsure risk underwritten by local, in-country insurance companies.

39. The presentations also provided information on the advantages of parametric insurance, such as rapid claim settlements (early flow of funds),[24] which can potentially reduce the overall impacts of a disaster by filling in the liquidity gap where little revenue is available to fund government services during the recovery phase from a catastrophic event, and the elimination of moral hazard and adverse selection.[25]

Sovereign climate risk management in practice – partnership models at different levels

40. An index-based livestock insurance scheme in place in Mongolia presented a new public-private partnership model where all stakeholder groups have a role that is suitable for their capability, thus achieving efficiency: the government deals with the layer of risk left uncovered as a result of the market failure (social insurance), leaving markets to manage lower levels of catastrophic risk (commercial insurance) and individuals to manage threats with high-basis risk (retention). Furthermore, the model is relatively robust to policy changes because even if the subsidy is cut off (the social insurance covered by the government), the commercial level of insurance can continue.

41. Discussions were also informed by the knowledge and lessons learned from innovative public-private partnerships at the regional level for sovereign climate risk management in the Caribbean and Africa. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) operates as an insurance company issuing region-wide annual parametric

[23] The UNISDR six-step recommendations for mainstreaming are: (i) mapping institutions, policies and mechanisms already in place; (ii) taking stock of the available information on hazards, exposure, vulnerabilities and risk assessments; (iii) convening multi-stakeholder discussions to review information and identify opportunities to harmonize policy and address capacity gaps; (iv) initiating capacity-development activities to build or strengthen coherent approaches to climate change adaptation and DRR; (v) designing joint project initiatives that address both climate change adaptation and DRR; and (vi) conducting adaptation planning using a multisectoral, development-based approach and centralized oversight responsibility.

[24] In the case of the Caribbean Catastrophe Risk Insurance Facility, the average time required is two weeks.

[25] Other benefits of parametric insurance mentioned include: flexibility in terms of coverage conditions and limits; not requiring a detailed knowledge of the covered assets; the lower cost of risk transfer to international markets; and the increased transparency provided by risk-based pricing.

wind and earthquake insurance policies designed to offset the immediate post-disaster liquidity needs of national governments.[26] African Risk Capacity (ARC), a pan-African disaster risk pool based on the concept of CCRIF aims to address the increased risk of hunger and malnutrition in Africa's most vulnerable populations.

42. The lessons arising from these two examples informed the participants that a scheme involving several governments using a single instrument (pooling their risks) to collectively manage risks saves governments significant costs in risk management and in emergency response measures.

43. In addition, in the case of CCRIF further cost-effectiveness has been achieved through the establishment of a virtual entity (instead of a physical one) with low fixed costs and no shareholders requiring dividends and, in order to reduce premium costs, donors provided initial capital.[27] Countries also save on the administrative costs of risk transfer by pooling at the regional level since there is no need to separately design each bilateral product.

Roles for the public and private sectors in risk sharing, pooling and transfer

44. The presentations stressed the need for the public and private sectors to work together when considering timely and effective solutions for different risks and ways of minimizing the extension of at-risk areas without protection. While the public sector has the legal power to regulate and establish frameworks for and policy responses to catastrophic events, the private sector has the necessary financial resources to absorb the financial impact by making the risk insurable – for example by pooling many premiums from different natural disaster risks around the world that are geographically different or spread widely enough to represent largely independent risks.

45. The experiences shared by ARC and others drew attention to the critical need for reliable data in order to enable ex ante risk management planning.[28] In Switzerland's case, the high-quality risk data collected by insurance companies was indispensable for the government to evaluate the costs of any measure to reduce risk and insurers also assisted in raising the level of awareness among the population groups at risk.

46. In addition to providing financial services and sharing quality data, the CCRIF reported on other potential roles that regional risk facilities can undertake to contribute to countries' risk management efforts, including the provision of real-time impact forecasting and funding for technical assistance programmes, research, and knowledge-gathering and dissemination. Participants acknowledged that these actions could catalyse further innovations in building regional capacity for catastrophe risk management.

47. Governments can, in turn, incentivize insurers to promote risk-reducing activities through legislation, financial oversight and monitoring. Another important role of governments is supporting those people/groups for whom commercial insurance products are not applicable or available – in true market failure circumstances.

[26] In addition to parametric insurance contingency funds also provide immediate liquidity and reduce the time between the event and the response so that appropriate assistance can be mobilized quickly and efficiently to those in need; knowing ahead of time the potential amount of funds available allows for direct cost savings.

[27] Participating countries paid a membership fee.

[28] Evidence from Ethiopia shows how USD 1 spent on early response measures can save USD 4 in the cost of intervention once a crisis has escalated. For further information, see the presentation given by African Risk Capacity <http://unfccc.int/6094>.

Specific context and wider context

48. Considering the similarities and differences among a number of current risk transfer schemes presented at the workshop, participants noted that these schemes will require further development of regional and in-country expertise, as there are no 'ready-made' risk transfer products and each region, country and set of circumstances requires different products to enable specific responses. In addition, while noting the usefulness of risk transfer tools, participants stressed that the use thereof needs to be kept in perspective; similarly, the linkages between risk transfer mechanisms and adaptation need to be further assessed. With regard to assessing performance once the risk transfer schemes/mechanisms are implemented, participants learned that tools for such purposes are currently limited.

IV. Summary of the key gaps and challenges in the implementation of risk management approaches to the adverse effects of climate change

49. Building on the information on the lessons learned and practical experiences shared by Parties, international and regional organizations and the private sector, a number of gaps and challenges in the implementation of risk management approaches were identified. This section summarizes those cross-cutting gaps and challenges discussed in general terms as well as in the context of specific aspects of the risk management process.

1. General aspects of cross-cutting gaps and challenges

Integration of various existing efforts to increase coherence and synergy

50. Noting the extent of existing initiatives and modalities, participants frequently mentioned the challenges related to the integration of ongoing relevant efforts in order to increase coherence and ensure synergy and to avoid the duplication of efforts.

51. Various types of integration were highlighted as being necessary to effectively manage climate-related risks on the ground, noting the limited resources available and the need to address common vulnerability drivers. The most frequently discussed was the integration of the existing work arising from the different perspectives of the Rio Conventions, in particular how to build upon previous experiences, tools and mechanisms in DRR (e.g. the Hyogo Framework for Action) to respond to the new realities posed by climate change. One of the challenges in that regard involves developing ways to improve the coordination of the DRR and adaptation agendas at the international level, including by, where appropriate, streamlining and harmonizing the various national reporting requirements of different international frameworks.

52. Highlighting that non-governmental organization (NGO) communities have been working in partnerships in many countries in the areas of mapping, developing and testing tools for DRR, NGO representatives highlighted gaps in the guidance from the international process on how to engage in policymaking and target the appropriate audience in their advocacy efforts in the context of climate change adaptation.

53. In addition to harmonizing international efforts, noting the different mandates, political will and/or traditional practices that exist at the operational level, some participants drew attention to the lack of a road map (e.g. guidelines, policies) in implementing DRR and adaptation work in a complementary/cooperative manner at the national and subnational levels. The integration of DRR and adaptation efforts into national policy and at the ministerial (sectoral) level as well as in local-level development planning is another area that requires further attention. One of the challenges in that regard is the development of national policy frameworks that lead to better integration across scales, sectors, hazards

and policy frameworks in order to enhance resilience and reduce vulnerability. To this end, participants affirmed the importance of the integration efforts being country-driven.

54. In promoting integration, participants also identified a gap in support for the development of national- and regional-level joint activities involving DRR and adaptation that are compatible with sustainable development. Some participants considered that developing the business case between adaptation and development for policymakers may be a useful step, as well as distilling and disseminating relevant information and key lessons learned to the climate change process from ongoing related processes.

55. Participants raised the issue of the different languages spoken among stakeholders (e.g. DRR and adaptation stakeholders, the insurance sector and adaptation practitioners) as a barrier for promoting integration. The lack of a common language and terminologies among stakeholders creates a gap which inhibits better understanding.

Holistic approach

56. Participants drew attention to the need to address risk management in a holistic way at the national level and the importance of not dealing with each aspect of the risk management process in isolation. There is a gap in support for the development of a risk management portfolio encompassing all elements of the risk management process in order to address specific contexts in accordance with national and local priorities. In particular, some participants called for the development of guidelines to assist stakeholders at the local level to enhance their understanding of the climate risk assessment and management process in a holistic manner. There is also a gap in the methodologies currently available to provide guidance on when and how to use and how to assess the different risk management approaches.

Limited resources and capacities

57. The gap in donor coordination and limited access to finance that is applicable to DRM activities poses a further challenge in enhancing risk management approaches. Noting that the provision of finance alone is not adequate, it was also commonly acknowledged that gaps exist in the knowledge and capacities that would enable countries, in particular the most vulnerable developing countries, to deal successfully with the risks associated with climate change. An additional gap was highlighted in the provision of support for the formulation of an integrated DRR/adaptation agenda to serve as a guide to effectively address climate risks within a country. Some participants suggested that centres of excellence (regional centres) may have a useful role in addressing the capacity-building issues and effective dissemination of information (e.g. a comprehensive analysis of tools, best practices, etc.).

58. With regard to information and knowledge, two kinds of challenges were broadly identified:

(a) *Contextualizing existing information and data.* The workshop confirmed that there is significant amount of data and information that already exists that needs to be translated and localized to suit the national perspective and local context, thereby communicating the useful strategic knowledge to practitioners, policymakers and governments, as well as for actions under the UNFCCC process;

(b) *Improving the information flow* between the international level/Convention process and stakeholders at the national and subnational levels. A challenge remains in improving the connection between the information needs on the ground and the discussion under the Convention process or other work at the international level.

59. In terms of capacity, a commonly noted challenge lies in identifying and building the different capacities that are required at different levels. Some participants indicated that

the particularly low level of adaptive capacity and awareness about risk management at the local level was a pressing gap. Others were of the view that the gap in institutional strengthening at the national level needs to be addressed urgently, including by enhancing support for the national focal points to play an advocacy role for the coherence and integration of risk management approaches. It was generally acknowledged that addressing the large capacity gap in the most vulnerable developing countries is a pressing matter in this regard.

New emerging risks due to climate change (including slow onset events and permanent losses)

60. Another key challenging issue that warrants further discussion in the context of adaptation is how to collectively address asset or livelihood losses arising from new emerging risks due to climate change, which cannot be addressed through market-related mechanisms. Presentations and discussions affirmed that there is a wealth of knowledge and lessons learned from practical experiences in addressing extreme events and rapid onset events.[29] On the other hand, there is a significant gap in available knowledge, tools and approaches to manage risks related to slow onset events. Some participants drew attention to the pressing need for further discussion on how to address permanent losses, including on whether existing mechanisms can evolve to handle these.

Reaching the most vulnerable

61. The importance of reaching and protecting the most vulnerable was also frequently raised. Participants pointed out that innovative risk financing tools and approaches are, in practice, often not available or not applicable to benefit the most vulnerable. A challenge in this regard is to determine an appropriate set of options of tools and approaches to address the specific needs of the most vulnerable and to subsequently make them available and applicable in the developing country context.

Engaging the private sector

62. It was widely considered that effective risk management should involve both the public and the private sector. There is a gap in understanding on how the private sector relates to the public sector and on modalities for the further engagement of the private sector. A mapping of the different agents in the private sector is required, as well as the contextualization of this information under the Convention process. How to address the issue of the potential conflict of interest between profit and reduction of losses as a main driver is another challenge that needs further discussion.

Decision-making under uncertainty

63. Discussions at the workshop confirmed that climate change will bring a new dynamic into DRM practice, including: different and/or greater levels of uncertainty (e.g. potentially intensified extreme events, more frequent smaller- and medium-scale events); risks in new locations not formerly exposed to hazards; and a need to adjust to new multi-hazard management. Noting these new dimensions, another key challenge that participants raised relates to decision-making under uncertainty: how to make decisions when faced with limited information and a need to address the longer-term prospect of climate change in the risk management approach. Some participants noted that improving the visual demonstration of different options (e.g. downscaling models with greater visualization) may be useful in communicating the message to policymakers in this regard.

[29] For example, the Intergovernmental Panel on Climate Change *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, which will generate knowledge on: extreme events and their characteristics; the determinants of risk (e.g. exposure and vulnerability); changes in climate extremes and their impacts on the physical environment; the human system and ecosystems; and risk management at different levels.

Ex ante versus ex post investments

64. Participants also discussed challenges related to enhancing national and local resilience and preparedness with the aim of decreasing vulnerability to risks. Some participants felt that governments and policymakers are not always receptive to ideas and narratives around risk management, partially due to the 'business-as-usual' practice of dealing with disasters once they occur.

2. Assessments

65. In relation to assessments, participants identified a fundamental gap in the availability of data (e.g. hydrometeorological, socio-economic) and information, especially at the national and local levels. In particular, there is a need to enhance support for the institutional strengthening of meteorological services in countries and to further enable data exchange among countries.

Tools for assessments

66. Other challenging issues identified include: the limited availability of risk assessment tools at the national level in most countries; gaps in the availability of "local specific" models for the prediction of impacts and the limited capacity to assess vulnerability at the community level; and challenges related to the development of tools for assessing the efficacy of different measures. Participants noted the need to fully utilize existing tools for assessing the different types of risks, such as the hybrid exceedence curves.

3. Disaster risk reduction, planning and preparation

Risk reduction for small and medium-sized events

67. In view of the information provided during the thematic sessions (as referred to in paragraphs 27 and 28 above) regarding the fact that the totality of losses arising from smaller and medium-sized climatic events (resulting from extensive risks) could surpass those of very large ones (resulting from intensive risks), a challenge remains in increasing the resilience, including securing resources to effectively deal with these cumulative small and medium-sized impacts that may result in most cumulative losses and damage in most countries.

'Climate proofing' DRR tools

68. While there is a wealth of information on DRR projects, an explicit adaptation component is still unclear in some cases. Tools that are available in the DRR domain for raising awareness, planning and mapping risks have been found useful; however, a challenge remains in how to link/make them more applicable and adjust them, where necessary, to the climate change context.

Portfolio of approaches

69. Diverse national and local circumstances (e.g. exposure to different hazards, varying socio-economic development context, underlying drivers for vulnerability, regulatory and policy frameworks in place), pose a challenge in considering and assessing a wide range of approaches to address the risks identified at different levels and at different sectors.

4. Risk transfer, pooling and sharing in the context of adaptation to climate change

70. Key gaps and challenges were identified with regard to risk transfer, pooling and sharing in the context of adaptation in general and the Convention process in particular, including:

(a) Gaps in understanding how and when risk transfer mechanisms are suitable to use and how they fit into a wider risk management portfolio;

(b) Gaps in the availability of information on risk transfer, pooling and sharing tools other than insurance tools, as insurance may not be the most suitable tool for all circumstances. There is a need to further consider the targeted/intended beneficiaries in this context;

(c) Limited understanding of how insurance and other risk transfer, pooling and sharing mechanisms can incentivize positive behavior and avoid maladaptation.

Insurance in particular

71. In the light of the workshop presentations which shared information on a series of well-designed innovative insurance-type mechanisms that currently exist or are in preparation, the need to comprehensively assess the different insurance examples was raised in order to consider approaches for different types of risk.

72. A number of challenges associated with insurance tools was also identified, including:

(a) How to replicate good practices – whether the existing initiatives only reflect the risks and regions uniquely suitable for these initiatives;

(b) How to scale up the implementation of these tools in the developing country context in order to benefit the most vulnerable as the tools are currently mostly available only to those that can afford it;

(c) How to process/feed technical expertise into the Convention process;

(d) How to enhance the collection of the high quality data required and advance the development of models which allow for more effective and timely products.

V. Perspectives on the role of the Convention in addressing the range of risk management approaches

73. Taking into account the current practices, gaps and challenges addressed during the workshop, a number of potential roles for the Convention were identified to support countries, particularly the most vulnerable, to better understand how to develop a comprehensive risk management portfolio, addressing risk protection and dealing with residual risk.[30] Many of the potential roles were related to enhancing the enabling environment and resource mobilization, including catalysing action, to build the capacity of countries in order to enable them to utilize the available tools to manage risk.

74. Views on the potential roles of the Convention included:

(a) To promote a holistic planning/approach to climate risk management, including assisting in strengthening technical capacity in building linkages, facilitating risk assessments of all investments and consolidating the information on risks;

(b) To foster coherence on various ongoing initiatives to assess risk and vulnerability from the different perspectives of the Rio Conventions and the disaster risk context, including through the facilitation of financial support, institutional strengthening, and information-sharing on the wide-ranging available tools and building the capacity of countries to enable them to use those tools, including by:

[30] Participants listed a number of potential roles of the Convention as a result of breakout group discussions. These views were not necessarily agreed on by all participants.

(i) Catalysing partnerships for implementation, particularly at the regional level, to break down “silos” between the adaptation and DRR (e.g. work under the Hyogo Framework for Action) communities;

(ii) Providing guidance for relevant organizations and other stakeholders to engage in relevant and targeted policy and advocacy levels;

(iii) Facilitating the standardization of tools;

(iv) Supporting the national focal points to improve advocacy for coherence and the integration of risk management approaches;

(c) To make available, translate, distil and contextualize information, including by fostering the exchange of knowledge and information across the different disciplines that engage in risk management;

(d) To improve communication among different stakeholders, including by developing a reliable system or process to disseminate information with a view to raising awareness and facilitating informed decision-making;

(e) To regularly bring together information on new modalities and mechanisms on insurance and reinsurance, and related technical expertise and advice in order to inform the process;

(f) To provide a forum to discuss market failure in addressing slow onset events and other new emerging risks due to climate change and to consider which types of mechanism can be incorporated.