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Nairobi work programme on impacts, vulnerability and adaptation to climate change

Activities undertaken by regional centres and networks on adaptation planning processes and processes and structures for linking national and local adaptation planning

Note by the secretariat

Summary

This document synthesizes the information contained in 68 submissions contributed by 13 regional centres and networks and 8 international organizations with regional presence, including 19 partner organizations of the Nairobi work programme on impacts, vulnerability and adaptation to climate change, on activities undertaken to inform adaptation planning. The submissions provided specific information on: (1) available and implemented tools and methods for adaptation planning addressing the four issues of ecosystems, human settlements, water resources and health; (2) good practices and lessons learned in relation to adaptation planning, including monitoring and evaluation, addressing the aforementioned four issues; and (3) good practices and lessons learned related to processes and structures for linking national and local adaptation planning. In addition, this document contains an overview of the knowledge-sharing and training activities carried out by those organizations as well as a synthesis of the outcomes of those activities in different regions of the world. Finally, the document identifies possible next steps to be taken in the light of the challenges and gaps identified in the submissions.

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Contents

I. Introduction

A. Mandate

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its fortieth session, requested the secretariat to invite and engage, by SBSTA 41, regional centres and networks (RCNs) with the capacity to do so, including those identified through the Adaptation Committee's work on RCNs, in collaboration with relevant partner organizations of the Nairobi work programme on impacts, vulnerability and adaptation to climate change (NWP), with a view to those RCNs using knowledge-sharing modalities, as appropriate and subject to the availability of financial resources, to produce information, for SBSTA 43, on:

(a) Available and implemented tools and methods for adaptation planning addressing the four issues of ecosystems, human settlements, water resources and health;

(b) Good practices and lessons learned in relation to adaptation planning, including monitoring and evaluation, addressing the four issues of ecosystems, human settlements, water resources and health;

(c) Good practices and lessons learned related to processes and structures for linking national and local adaptation planning.[1]

2. SBSTA 40 also requested the secretariat to invite and engage the relevant RCNs, by SBSTA 44, to report on the outcomes of their activities referred to in paragraph 1 above.[2]

B. Background

3. The Conference of the Parties (COP), at its nineteenth session, decided to continue the NWP within the framework of the provisions of decision 2/CP.11, addressing the knowledge needs arising from, inter alia, the Cancun Adaptation Framework and other relevant workstreams and bodies under the Convention and the knowledge needs identified by Parties.[3] In addition, COP 19 requested the SBSTA to consider under the NWP the issues of ecosystems, human settlements, water resources and health.[4]

4. In accordance with decision 17/CP.19, SBSTA 40 agreed on a set of activities to be undertaken under the NWP to enable information and knowledge to be collected, analysed and disseminated to inform adaptation planning and actions at the regional, national and subnational levels, particularly in relation to, inter alia, ecosystems, human settlements, water resources and health.[5]

C. Scope of the note

5. This document synthesizes and analyses the information contained in the 68 submissions received on knowledge-sharing activities undertaken in 2015 by RCNs as well as international organizations and networks with regional presence. All of the submissions are available on the UNFCCC website.[6] The tools and methods as well as the knowledge

[1] FCCC/SBSTA/2014/2, paragraph 25.
[2] FCCC/SBSTA/2014/2, paragraph 26.
[3] Decision 17/CP.19, paragraph 1.
[4] Decision 17/CP.19, paragraph 5.
[5] FCCC/SBSTA/2014/2, paragraph 19.
[6] <http://unfccc.int/9557.php>.

products (including manuals, reports, academic publications and online portals) that are presented in the submissions are also searchable through the adaptation knowledge portal.[7]

6. Chapter I.D provides an overview of the submissions on knowledge-sharing activities and the information contained therein, including the distribution of the reported activities by region and main thematic area. Chapter II provides a synthesis of the outcomes of the knowledge-sharing and training activities carried out by RCNs and international organizations at the regional level, with each section addressing the activities undertaken in one particular region (Asia-Pacific, Latin America and the Caribbean, North America and Europe, respectively), highlighting the thematic focuses and content of those activities (including the shared tools and methods used for adaptation planning) and detailing the knowledge-sharing and training modalities that were employed for different target beneficiaries as well as the means of implementation (e.g. types of collaboration, implementing partners and resource implications). Chapter III provides an analysis of the good practices and lessons learned in relation to knowledge-sharing and training modalities across regions (chapter III.A) and to adaptation planning addressing the four areas of ecosystems, human settlements, health and water resources, including processes and structures for linking national and local adaptation planning (chapter III.B). Chapter IV concludes with possible next steps for enhancing learning and the sharing and dissemination of information and knowledge in the different regions in order to better inform adaptation planning and action at all governance levels.

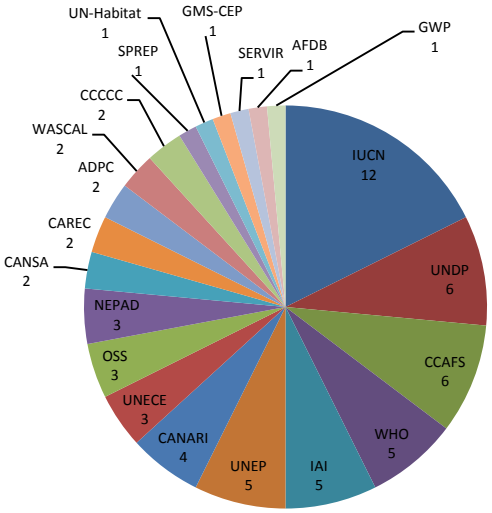
7. Annex I contains a comprehensive list of the submissions and information on the knowledge-sharing and training activities reported therein, organized by region (i.e. Asia-Pacific, Latin America and the Caribbean, North America and Europe). Annex II contains a description of the tools and methods used for adaptation planning processes that are described in the submissions and is organized by thematic area (including ecosystems, human settlements, water resources and health). Annex III comprises a list of acronyms that are used in the note.

D. Overview of the submissions

8. A total of 68 submissions were contributed by 21 organizations, including 19 NWP partner organizations. Among the 21 organizations, 8 are international organizations with regional offices or undertaking regional activities and 13 are RCNs, as illustrated in figure 1.

[7] <http://www4.unfccc.int/sites/nwp/Pages/Home.aspx>.

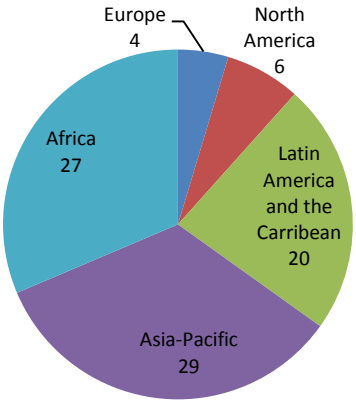
Figure 1
Number of submissions by contributing organization



Abbreviations: ADPC = Asian Disaster Preparedness Center, AfDB = African Development Bank Group, CANARI = Caribbean Natural Resources Institute, CANSA = Climate Action Network South Asia, CAREC = Regional Environmental Centre for Central Asia, CCAFS = CGIAR Research Program on Climate Change, Agriculture and Food Security, CCCCC = Caribbean Community Climate Change Centre, GMS-CEP = Greater Mekong Subregion Core Environment Program, GWP = Global Water Partnership, IAI = Inter-American Institute for Global Change Research, IUCN = International Union for the Conservation of Nature, NEPAD = New Partnership for Africa's Development, OSS = Sahara and Sahel Observatory, SERVIR = SERVIR-Mekong, SPREP = Secretariat of the Pacific Regional Environment Programme, UNDP = United Nations Development Programme, UNECE = United Nations Economic Commission for Europe, UNEP = United Nations Environment Programme, UN-Habitat = United Nations Human Settlements Programme, WASCAL = West African Science Service Center on Climate Change and Adapted Land Use, WHO = World Health Organization.

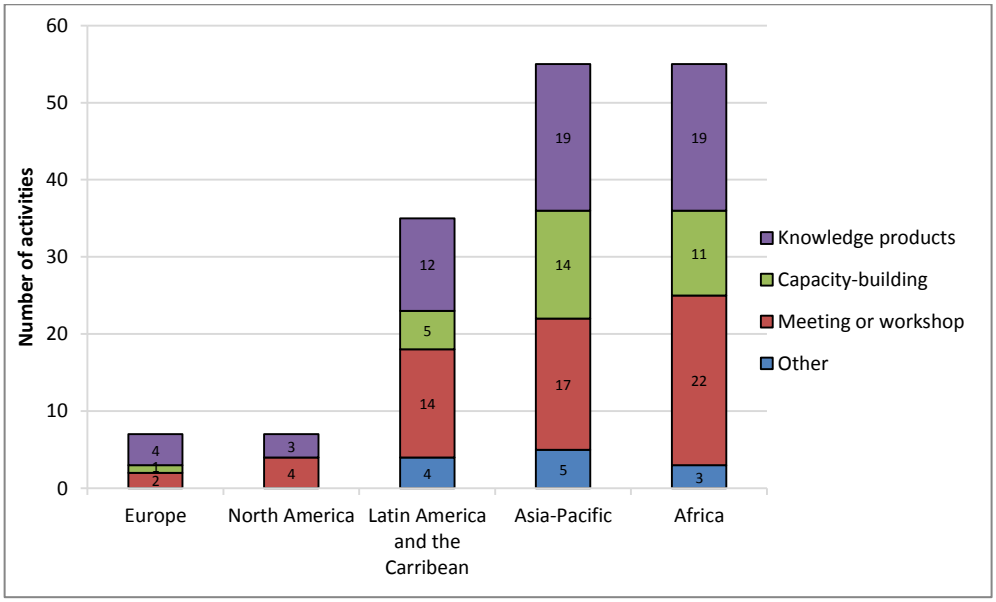
9. While most of the submissions cover knowledge-sharing and training activities targeting stakeholders in only one of the reported regions, seven of the submissions contain information on activities targeting stakeholders in multiple regions. Figure 2 illustrates the distribution of the focus of the submissions by region; submissions covering activities targeting stakeholders in various regions have been included in each region's count.

Figure 2
Focus of submissions by region



10. As illustrated in figure 3, the three main knowledge-sharing and training modalities reported in the submissions include the organization of a meeting or workshop, the production of web-based products or printed knowledge products and the organization of a capacity-building activity. Activities documented under "other" refer generally to the production of project documents (e.g. vulnerability assessments or preparatory or follow-up reports on specific events), the provision of specific technical support or field visits. The rather similar distribution of knowledge-sharing and training modalities reported in relation to Latin America and the Caribbean, Asia-Pacific and Africa is due to the overlap between their meetings, workshops and capacity-building activities and the fact that 17 submissions combined the modalities of meetings and workshops and knowledge products, while 21 combined all three main types of knowledge-sharing modalities.

Figure 3
Distribution of reported knowledge-sharing and training modalities by region



11. A new typology was developed (see table 1) to refine the analysis of the meetings, workshops and capacity-building activities that were undertaken, acknowledging the possible overlaps between those different knowledge-sharing and training activities. However, this typology should not conceal the continuum between the four types of activity

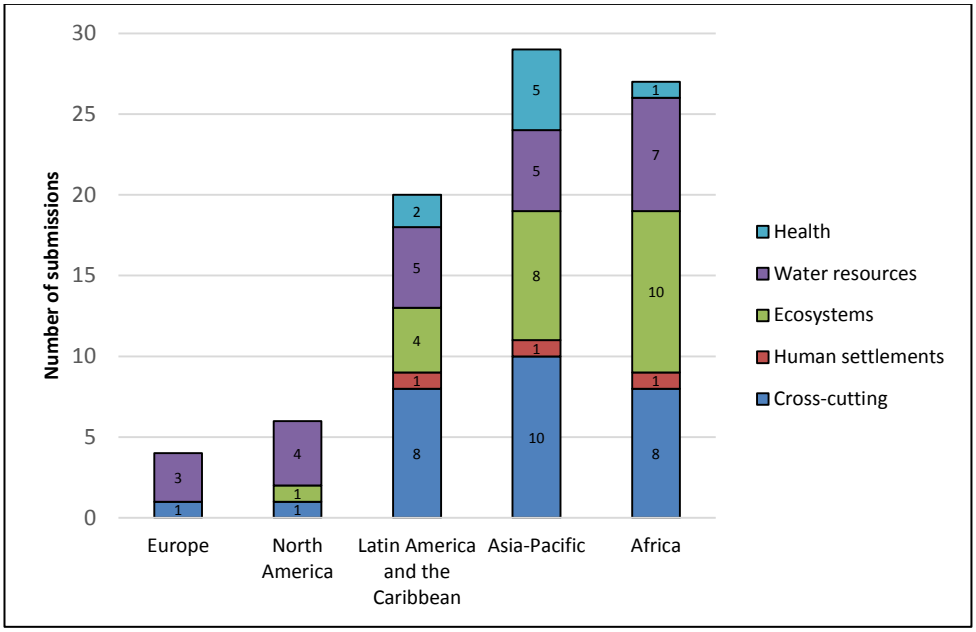
described in table 1, nor the fact that some events may combine features pertaining to different types of activity.

Table 1
Typology of meetings and workshops and capacity-building activities described in the submissions

Type of activity	*1) Awareness-raising/ sensitization/information sharing event*	*2) Technical training session*	*3) Technical support for the implementation of adaptation processes and activities*	*4) Exchange platform/ round-table meeting*
Content	General information on adaptation and principles of adaptation planning and action	Capacity-building in relation to specific sectors and/or methods and tools	Capacity-building in relation to adaptation planning and implementation processes and/or tools and methods for the immediate implementation of activities	Open dialogue on concrete issues related to the planning and implementation of adaptation actions in a given sector and/or on a given geographical scale
Target beneficiaries	Wide audience of policymakers, civil-society organizations, local communities, experts and practitioners, academia and the private sector	Policymakers (officials and technical administrative staff), experts and practitioners	All stakeholders involved in the above adaptation activities, either collectively or as target groups	Policymakers (officials and technical administrative staff), experts and/or practitioners who contribute to adaptation in that sector and/or on that geographical scale
Main objective(s)	Raising awareness of climate change impacts, vulnerability and adaptation challenges and opportunities (in relation to adaptation planning in general or addressing one or more of ecosystems, human settlements, water resources and health)	- Building the capacity of policymakers and practitioners to plan and implement adaptation actions - Opening dialogue and fostering collaboration among the participating stakeholders	- Facilitating or supporting the implementation of adaptation activities - Engaging stakeholders and increasing their ownership of the activities	- Facilitating collective learning and problem resolution - Building collaboration and communities of practice (either nationally or internationally) among stakeholders coming from different governance levels and/or world regions

12. Most of the 68 submissions address more than one of the four thematic areas of ecosystems, human settlements, water resources and health. For the purpose of analysis, a primary thematic area was identified for each submission, as illustrated in figure 4, while secondary thematic areas were determined to further refine the analysis, as described in chapter III below. In figure 4, the additional category "cross-cutting" comprises activities undertaken in sectors that span two or more of the thematic areas (i.e. the agriculture and tourism sectors) and activities that are not theme-specific (i.e. knowledge-sharing and training on data collection and dissemination techniques as well as on general adaptation planning tools and methods). Processes and structures for linking national and local adaptation were not the focus of any knowledge-sharing activities described in the submissions. They were generally addressed indirectly through some of the good practices and lessons learned that were shared in the submissions.

Figure 4
Distribution of submissions by regional focus and primary thematic area



13. As illustrated in figure 4, the majority of the knowledge-sharing and training activities reported in the submissions focused on ecosystems and water resources (including in relation to agricultural practices). Indeed, the challenges of ecosystem resilience and sustainable water management appear to be inextricably linked to the issue of agriculture, especially in river basins. Otherwise, eight submissions reported activities addressing health issues and three submissions detailed activities dealing with human settlements.

14. Each submission was assigned a code (see annex I for the code and other information for each submission). Throughout this document, where appropriate, the submissions are referred to by their codes. Annex II describes the tools and methods for adaptation planning reported in the submissions.

II. Outcomes of the regional activities

A. Asia-Pacific

15. Among the 29 submissions describing knowledge-sharing activities that benefited stakeholders in the Asia-Pacific region, 12 were contributed by RCNs (i.e. the Asian Disaster Preparedness Centre (ADPC), the Regional Environmental Centre for Central Asia, CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), the Greater Mekong Subregion, the Inter-American Institute for Global Research (IAI), SERVIR (regional visualization and monitoring system), the Secretariat of the Pacific Regional Environment Programme and Climate Action Network South Asia) and 17 were submitted by international organizations (i.e. the International Union for Conservation of Nature (IUCN), the United Nations Development Programme (UNDP), the United Nations Economic Commission for Europe (UNECE), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO)). Owing to the diverse goals and features of these organizations, the knowledge-sharing and training activities that they undertook in collaboration with other RCNs, local non-governmental organizations (NGOs), bilateral and multilateral donor organizations and research centres focused on different thematic areas and countries within the region and employed various modalities.

16. The main area of concentration reported in the submissions that were communicated for the Asia-Pacific region is related to sustainable land and water management and covers ecosystems, water resources and agriculture. The second most important area of concentration is health. Seven knowledge-sharing and training activities reported for the region are not specific to a thematic area and address different adaptation planning components, as shown in figure 5:

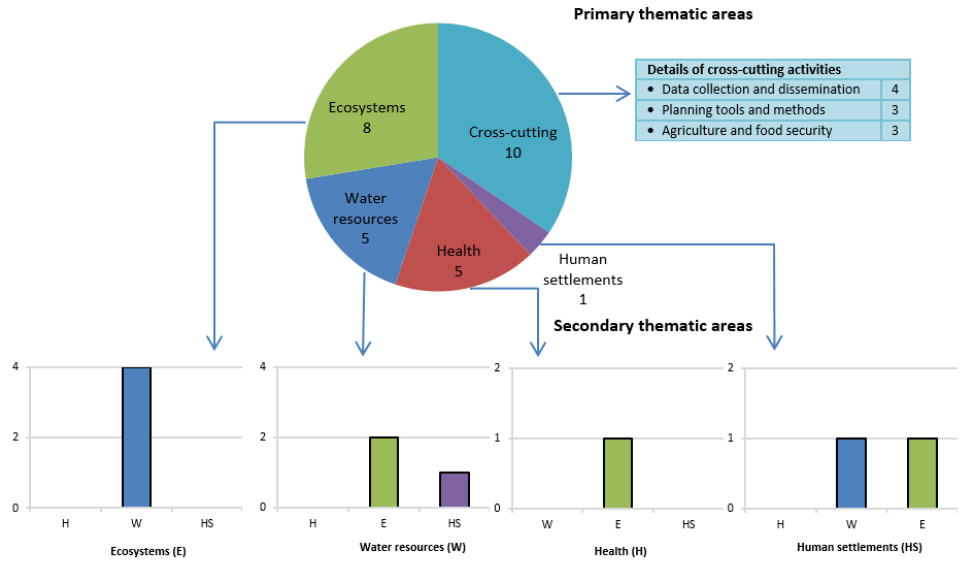
(a) A total of 17 out of 29 submissions refer to activities addressing ecosystems, water resources and agriculture, generally in a joint manner. The issue of adaptation planning at "watershed level" or on the "water-basin scale" is quite prominent and generally involves the enhancement of ecosystem services.[8] Several knowledge-sharing and training activities that promote ecosystem-based adaptation concentrate on rural regions located in coastal areas or in mountainous environments, where sustainable water management is a key concern. In addition to the mention of "agroecosystem services and functions" in some submissions addressing ecosystem-based adaptation, "climate-smart agriculture" and "adaptation for food security and resilience" are the main focuses of three submissions.[9] The only submission focusing on human settlements actually tackles ecosystem-based adaptation in an urban setting. This thematic concentration is specific to a particular group of countries, including Bhutan, Cambodia, China, Lao People's Democratic Republic, Myanmar, Nepal, Sri Lanka, Thailand and Viet Nam. More specifically, five submissions concentrate on the Mekong river basin area. Conversely, only one submission on "water and nature conservation" deals with the West Asia subregion;

(b) The second thematic area of concentration is health, owing to the five knowledge-sharing and training activities on climate change and health undertaken by WHO, which provided training to representatives of the South-Eastern and Southern Asian countries mentioned in paragraph 16(a) above as well as to some representatives of Bangladesh, India, Indonesia, Maldives, Papua New Guinea, Samoa, Timor-Leste and Tuvalu. In addition, the report of WHO based on a systematic review of health and climate change in the Eastern Mediterranean region focuses on some West Asian countries such as Afghanistan, Iran (Islamic Republic of), Jordan, Lebanon, Pakistan, Saudi Arabia and the Syrian Arab Republic;

(c) The cross-cutting knowledge-sharing and training activities address: (1) geospatial data and technologies for Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam;[10] (2) climate change adaptation in Central Asia, with a specific focus on Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan;[11] (3) the cost–benefit analysis of adaptation options for the 14 countries involved in the Pacific Adaptation to Climate Change Programme;[12] (4) the economics of climate change adaptation, looking at Bangladesh, Cambodia, Indonesia, the Lao People's Democratic Republic, Maldives, Mongolia, Nepal, Sri Lanka, Thailand and Viet Nam;[13] and (5) multi-stakeholder adaptation planning and practices for Cambodia, Nepal, Sri Lanka and Viet Nam.[14]

[8] GMSCEPAP01, IUCNAP01, UNEPAP01 and UNEPAP03.
[9] ADPCAP02, CCAFSAP01 and UNDPAF03.
[10] SERVIRAP01.
[11] CARECAP01 and CARECAP02.
[12] SPREPAP01.
[13] UNDPAP01.
[14] CANSAAP01 and CANSAAP02.

Figure 5
Distribution of submissions by primary and secondary thematic area and details on the cross-cutting submissions for Asia-Pacific



17. The knowledge-sharing and training modalities employed in the Asia-Pacific region include the dissemination of 19 knowledge products and the organization of 17 meetings or workshops and 14 capacity-building activities. Other activities consist of village meetings, site visits and advocacy work.

18. Of the 19 knowledge products providing relevant information for the region, 16 products were developed to provide background or follow-up information and knowledge for a workshop or meeting, while only three were stand-alone products, including the two systematic review documents on climate change and health produced by WHO for the Eastern Mediterranean region and for South-Eastern Asia.[15]

19. As per the typology described in table 1, the meetings and workshops and capacity-building activities pursued different objectives and focused on diverse target beneficiaries:

(a) The awareness-raising and information-sharing events for general audiences included the regional conference on climate change in Central Asia: an opportunity for joint actions towards Paris 2015, organized by the Regional Environmental Centre for Central Asia;[16]

(b) Technical training sessions included capacity-building in relation to health, training on the economic dimensions of adaptation planning and water management for high-level officials from central governments and more local-level and/or multi-stakeholder training for issues related to food security, ecosystem-based adaptation and ecosystem resilience, for example:

(i) WHO organized two high-level training sessions for officials from the ministries of health and environment of multiples countries in the Asia-Pacific region. They were complemented by the provision of a training package for countries to conduct their own national training on health and climate change. The Secretariat of the Pacific Regional Environment Programme organized a training

[15] WHOAF01 and WHOAP02.
[16] CARECAP02.

session on tools and methods to carry out cost–benefit analysis of adaptation options for project coordinators, adaptation practitioners and project developers;[17]

(ii) As part of its comprehensive capacity development towards integrating ecosystem-based adaptation into the national- and local-level planning system in Nepal, UNEP, in partnership with UNDP and IUCN, organized various training sessions for government officials at the national, district and village levels and developed a training manual in both English and Nepali.[18] CCAFS organized a training course and roving workshop on climate-smart agriculture and participatory methods, facilitation and community engagement techniques for climate-smart villages in South-Eastern Asia for village leaders, researchers and scientists from local institutions and local government officials at the district or province level.[19] ADPC provided training on ecosystem resilience in a changing climate to representatives of the ministries and departments of agriculture, agricultural officers, extension officers and representatives of farming communities from both Sri Lanka and Viet Nam;[20]

(c) Meetings or workshops were organized to facilitate the implementation of externally funded activities, projects or programmes, more particularly on ecosystem-based adaptation. For instance, IUCN provided technical support to the United States Agency for International Development (USAID) Mekong Adaptation and Resilience to Climate Change programme in the Lower Mekong Basin.[21] While SERVIR, which is related to USAID, carried out a needs assessment of geospatial data and technologies in the Lower Mekong region.[22] UNEP, in partnership with UNDP and IUCN, undertook a vulnerability and impact assessment for adaptation planning in the Panchase Mountain Ecological Region of Nepal.[23] Finally, within the framework of the project grant preparation phase of a UNEP Global Environment Facility/Least Developed Countries Fund project, UNEP organized a regional development workshop on urban ecosystem-based adaptation in Asia-Pacific;[24]

(d) Round-table meetings and exchange platform workshops were undertaken to facilitate technical information sharing and problem resolution among policymakers and practitioners at the regional level. For instance, the Greater Mekong Subregion Core Environment Program organized four climate change adaptation round tables for Greater Mekong Subregion national and subnational government officials and practitioners in 2015.[25]

20. The various meetings and workshops and capacity-building activities resulted in enhanced understanding and knowledge of climate change adaptation approaches, tools and methods among the participants. The positive implications in terms of more efficient and better-conceived adaptation planning and implementation have been documented in some cases.[26] Furthermore, local-level multi-stakeholder meetings and workshops have contributed to improving coordination between relevant government officials at all levels and the communities as well as to enhancing both bottom-up and top-down flows of information. High-level regional training sessions for high-level officials from central governments and round-table meetings on a specific sector, adaptation approach or tool

[17] SPREPAP01.
[18] UNEPAP01, UNEPAP02 and UNEPAP03.
[19] CCAFSAP01.
[20] ADPCAP01.
[21] IUCNAP01.
[22] SERVIRAP01.
[23] UNEPAP01.
[24] UNEPAP04.
[25] GMSCEPAP01.
[26] CCAFSAP01.

have contributed to fostering technical dialogue across countries and could facilitate future collaboration.

21. All of the knowledge-sharing activities stem from collaboration between the above-mentioned organizations, other RCNs and international organizations as well as local NGOs. Universities and research centres in the north and south also played a major part in some of the activities by providing both technical and scientific support, including Yale University's School of Forestry and Environmental Studies, the University of Washington, the Stockholm Environment Institute, the Bangkok Regional Centre of the Institute for Global Environmental Strategies and the Mekong Region Futures Institute.

22. International donors played a major part in financing the knowledge-sharing and training activities. The main adaptation financial partners described in the submissions include the Asian Development Bank, USAID, the Gesellschaft für Internationale Zusammenarbeit (GIZ), the Australian Agency for International Development, the German Government and the Asia Pacific Adaptation Network, which is part of the Global Adaptation Network of UNEP. Northern NGOs (such as Care Denmark) also financed some activities.

B. Africa

23. Among the 27 submissions describing knowledge-sharing activities that benefited stakeholders in Africa, 16 were submitted by RCNs (i.e. the African Development Bank Group (AfDB), IUCN, the New Partnership for Africa's Development (NEPAD), Sahara and Sahel Observatory (OSS), the West African Science Service Center on Climate Change and Adapted Land Use (WASCAL) and IAI) and 11 were submitted by international organizations with regional offices and/or activities (i.e. the Global Water Partnership (GWP), UNDP, the United Nations Human Settlements Programme (UN-Habitat), WHO and UNECE). Owing to the diverse goals and features of these organizations, the knowledge-sharing and training activities that they generated in collaboration with other organizations, government bodies and universities focused on different thematic areas and countries within the region and employed various modalities.

24. The main thematic areas of concentration of the activities in the Africa region are ecosystems and water resources. However, an equally large number of the knowledge-sharing and training activities are not specific to a thematic area, as shown in figure 6:

(a) A total of 18 out of 27 submissions refer to activities addressing ecosystems, water resources and agriculture, in a more or less conjoint manner. Increasing the resilience of ecosystems within the framework of protected areas or biosphere reserves is addressed in two submissions, focusing on Kenya and Uganda and on West Africa, respectively.[27] The issue of sustainable land and water management is considered in three submissions, either from an African regional perspective or a subregional perspective, and is related to the issue of food security and resilience,[28] which is addressed from a global perspective in one submission.[29] In terms of ecosystem types, three submissions address the arid and semi-arid ecosystems with a focus on the Middle East, Northern Africa and the Sahel, one submission addresses coastal ecosystems, looking at the West African coastal countries and one submission tackles the Orange-Senqu river basin ecosystem.[30] The issue of water security is addressed for Central Africa as well as in two projects addressing crop insurance and farm ponds in Burkina Faso;[31]

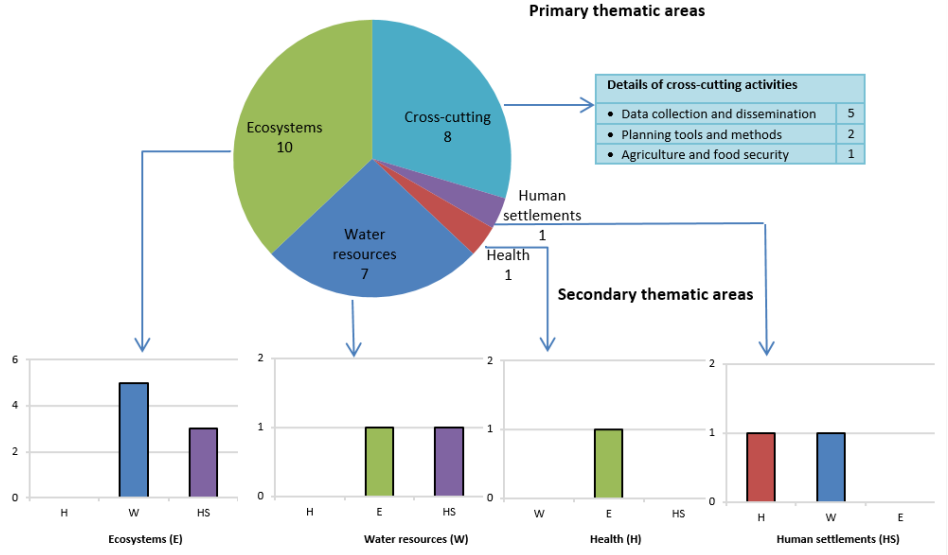
[27] IUCNAF04 and IUCNAF05.
[28] NEPADAF01, NEPADAF02 and NEPADAF03.
[29] UNDPAF03.
[30] OSSAF01, OSSAF02, OSSAF03, IUCNAF01 and IUCNAF06.
[31] GWPAF01, WASCALAF01 and WASCALAF02.

(b) Adaptation planning for the health sector is addressed in one submission for the Eastern Mediterranean region, which includes Egypt, Kuwait, Saudi Arabia, Somalia, Sudan, Tunisia, the United Arab Emirates and Yemen.[32] Adaptation for human settlements is dealt with in one submission focusing on an urban resilience planning tool for small and intermediate-sized cities in sub-Saharan Africa;[33]

(c) Cross-cutting knowledge-sharing and training activities are reported in five submissions that address the issue of access to and dissemination of climate information for resilient development, with a particular focus on weather and climate services in sub-Saharan Africa.[34] Three other submissions describe tools and methods for adaptation planning, as well as monitoring and evaluation, either for all African countries or specific to countries in West, Central and East Africa.

Figure 6

Distribution of submissions by primary and secondary thematic area and details on the cross-cutting submissions for Africa



25. The knowledge-sharing and training modalities employed in the Africa region include the dissemination of 19 knowledge products and the organization of 22 meetings or workshops and 11 capacity-building activities. Other activities consist of field visits, a study tour, the creation of an online platform and the organization of webinars.

26. Of the 19 knowledge products providing relevant information for the region, four were stand-alone reports, publications or research documents, including the systematic review of climate change and health in the Eastern Mediterranean region by WHO and a report on field facts for innovative crop insurance design by the West African Science Service Center on Climate Change and Adapted Land Use.[35]

27. As per the typology in table 1, the meetings, workshops and capacity-building activities pursued different objectives and focused on diverse target beneficiaries:

(a) Awareness-raising, sensitization and information-sharing events for wide audiences were organized by NEPAD on sustainable land and water management and by OSS within the framework of the REPSAHEL project to enhance the resilience of the Sahelian population to environmental change, as well as within the framework of the

[32] WHOAF01.
[33] UNHABITATAF01.
[34] UNDPAF01, UNDPAF02, UNDPAF03, UNDPAF04 and UNDPAF05.
[35] WHOAF01 and WASCALAF01.

UNDP programme on Climate Information for Resilient Development in Africa (CIRDA) through an online communication strategy including blogs and newsletter articles;[36]

(b) Most of the meetings and events that were reported in the submissions were technical training sessions or capacity-building activities concerning specific questions, tools or methods. With the exception of one training session at subnational level in Burkina Faso, all events involved participants from multiple African countries and generally targeted a combination of officials from national or local governments (and local communities in some cases) as well as sectoral practitioners or experts (including from the private sector), for example:

(i) Ministerial-level capacity-building activities, which also involved sectoral practitioners, were provided by GWP on project preparation related to water security and climate resilience and by IUCN on the tools for planning and monitoring and evaluating climate change adaptation capacity;[37]

(ii) Capacity-building activities targeting sectorally specialized national-level agencies for national protected area agencies and local communities on global information system based planning tools were organized by IUCN, and for national meteorological and hydrological services and private-sector representatives on new technologies and concepts for weather and climate monitoring were organized by UNDP CIRDA;[38]

(iii) City-level multi-stakeholder capacity-building activities were organized by UN-Habitat in five cities in Southern African countries during the pilot testing phase of the City Resilience Action Planning Tool;[39]

(c) Meetings or workshops were organized to facilitate the implementation, as well as the monitoring and evaluation, of externally funded activities, projects or programmes. For instance, OSS provided training on sustainable land and water management to project staff members of the World Bank/Global Environment Facility Sahel and Western Africa Programme. While AfDB organized some training sessions for its staff, government officials and representatives of NGOs and local communities on technical issues related to the implementation of adaptation operations in their projects;

(d) Round-table meetings or exchange platform workshops were undertaken to facilitate technical information sharing and problem resolution among policymakers and practitioners at the regional level. For instance, OSS organized a thematic regional workshop on sustainable forest ecosystem management in arid and semi-arid zones so that scientific and technical partners could share their experience.[40] NEPAD established the online TerrAfrica knowledge platform for stakeholders involved in sustainable land and water management to interact within and outside of the African continent.[41] While UNDP organized a global exchange workshop on adaptation for food security and resilience to bring together experts and practitioners from 11 countries across the regions of Africa, Asia and Latin America.[42]

28. The various meetings, workshops, capacity-building activities and online exchange platforms resulted in: increased public awareness of climate change adaptation challenges and opportunities; the enhanced capacity of the events' participants in relation to adaptation planning processes, tools and methods; increased dialogue and experience sharing within

[36] OSSAF03 and UNDPAF05.
[37] GWPAF01 and IUCNAF03.
[38] IUCNAF05, UNDPAF02 and UNDPAF04.
[39] UNHABITATAF01.
[40] OSSAF02.
[41] NEPADAF01.
[42] UNDPAF03.

communities of practice, including through blogs, newsletters and the organization of webinars; the co-design and improvement of the design of tools and methods for adaptation planning; and the preparation of concrete adaptation measures and action plans.

29. All of the knowledge-sharing activities in the Africa region stem from collaboration between the above-mentioned organizations, other RCNs, government bodies, local NGOs and research centres. Some of the key supporting partners mentioned in the submissions are line ministries of central governments, various national environmental agencies (such as the Agence de l'Environnement et du Développement Durable in Mali and the Conseil National de l'Environnement et du Développement Durable in Burkina Faso), the Economic Community of Central African States and the West African Economic and Monetary Union. Universities and research centres in the north and south also played a major part in providing different types of technical and scientific support, including the University of Kent, Durham University, the University of Nairobi, the Centre de Coopération Internationale en Recherche Agronomique pour le Développement and the International Center for Agricultural Research in the Dry Areas.

30. As per the submissions, international donors appear to have played a major part in financing the knowledge-sharing and training activities in Africa. They include the World Bank, USAID, the Global Environment Facility, the Government of Canada, the Government of Germany, the Government of Japan and the European Commission. Northern NGOs (such as Oxfam) also financed some activities.

C. Latin America and the Caribbean

31. Among the 20 submissions describing knowledge-sharing activities that benefited stakeholders in the Latin America and Caribbean region, 10 were contributed by RCNs (i.e. the Caribbean Natural Resources Institute (CANARI), the Caribbean Community Climate Change Centre (CCCCC) and IAI) and 10 were contributed by international organizations with regional presence (i.e. CCAFS, IUCN, UNDP and UNECE). Owing to the diverse goals and features of these organizations, the knowledge-sharing and training activities that they generated in collaboration with other organizations, government bodies and universities focused on different thematic areas and countries within the region and employed various modalities.

32. The main thematic area of concentration of the activities that were communicated for the Latin America and Caribbean region is water resources, closely followed by ecosystems, while activities related to health and human settlements were less frequently reported. Among the cross-cutting knowledge-sharing and training activities, five of eight submissions describe tools and methods used to carry out adaptation planning processes at various governance levels, including the national and regional levels, that are not specific to a thematic area, as shown in figure 7:

(a) Nine submissions refer to activities addressing ecosystems and water resources, very often in a joint manner, as suggested by the secondary thematic areas of concentration shown in figure 8. In addition to the two submissions of UNECE on transboundary water resources management at the global level, the issue of adaptation planning for river basins or at the watershed level is addressed in three submissions highlighting the interdependencies between ecosystems and water resources. The activities related to water resources essentially focus on Argentina, Chile, Dominica, Mexico and Peru. Regarding ecosystems, two submissions focus on ecosystem-based adaptation projects in Peru as well as in Costa Rica, El Salvador, Guatemala, Honduras, Mexico and Panama, while one submission addresses the economic valuation of ecosystems by

watersheds[43] in Grenada and Jamaica and one tackles coastal marine adaptation planning in Panama;[44]

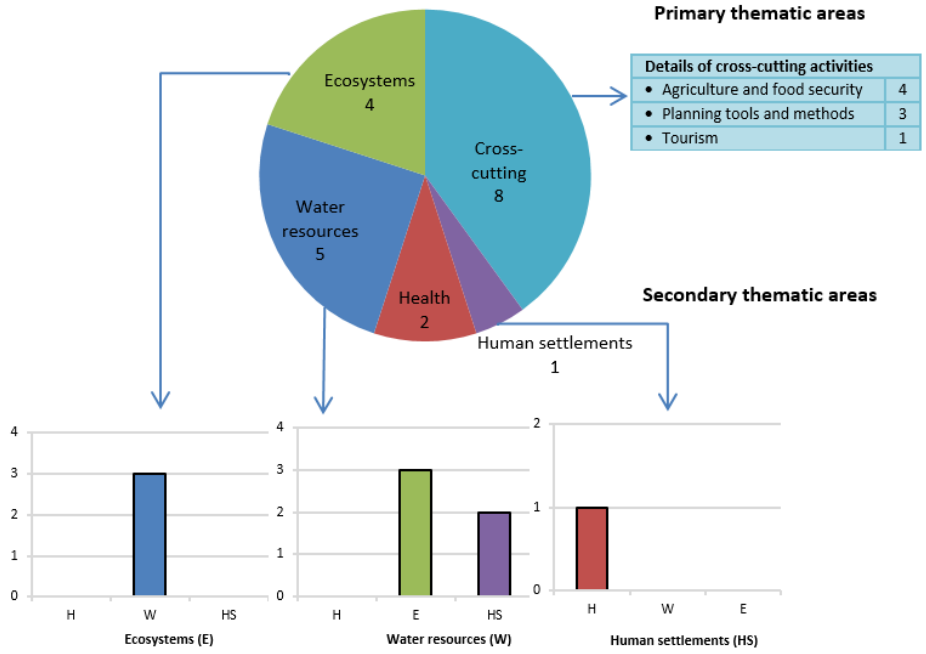
(b) Adaptation planning for health is addressed in two submissions focusing on the effects of anthropogenic habitat perturbation on rodent population dynamics and risk of rodent-borne diseases in Peru.[45] The submission on the weather generator tool for Belize City addresses the thematic areas of human settlements and health;[46]

(c) Regarding the sectors of agriculture and tourism, which span across thematic areas, three submissions address the management of agroclimatic risks for farmers and the development of adaptation plans for agriculture at both the regional and national levels in Colombia, Costa Rica, Honduras and Guatemala, while one submission deals with building resilience in the tourism and fisheries sectors in Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines;[47]

(d) The three submissions not related to specific thematic areas that describe knowledge-sharing activities and tools and methods for adaptation planning deal with Montserrat (an overseas territory of the United Kingdom of Great Britain and Northern Ireland), Saint Lucia and Trinidad and Tobago.[48]

Figure 7

Distribution of submissions by primary and secondary thematic area and details on the cross-cutting submissions for Latin America and the Caribbean



33. The knowledge-sharing and training modalities employed in the Latin America and Caribbean region include the dissemination of 12 knowledge products and the organization of 14 meetings and workshops and 5 capacity-building activities. Other activities include

[43] CCCCCLAC01.
[44] IUCNLAC02.
[45] IAILAC02 and IAILAC03.
[46] CCCCCLAC02.
[47] CCAFSLAC01, CCAFSLAC02, CCAFSLAC03 and CANARILAC01.
[48] CANARILAC02, CANARILAC03 and CANARILAC04.

training for students and fieldwork personnel as well as the provision of technical support for the implementation of a participatory modelling exercise.

34. Of the 12 knowledge products providing relevant information for the region, 6 were stand-alone publications, reports or research project documents. They include a report to demonstrate the use of the weather generator tool in relation to human health and human settlements in Belize City by the CCCCC and an upcoming geo-referenced inventory of ecosystem-based adaptation projects in Costa Rica, El Salvador, Guatemala, Honduras, Mexico and Panama produced by IUCN.[49]

35. As per the typology in table 1, the meetings, workshops and capacity-building activities pursued different objectives and focused on diverse target beneficiaries:

(a) IAI organized an international water security network meeting to share good practices in relation to adaptation planning for water resources with a diverse international audience comprising faculty members, students and city officials;[50]

(b) Technical training sessions generally targeted multiple stakeholders and took place at the subnational, national and regional levels:

(i) At the subnational level, CCAFS built the capacity of farmers in the four regions of Colombia to use climate information and facilitated the regular meetings of local technical agroclimatic committees to bring together scientific and local knowledge. CCAFS also provided training on future scenario methodology to farmers associations as well as policymakers and technical personnel from the central government of Honduras to facilitate the development of regional adaptation plans for agriculture;[51]

(ii) At the national level, CANARI built the capacity of civil-society organizations and public-sector agencies in both Saint Lucia and Trinidad and Tobago to utilize the Rapid Institutional Analysis for Adaptation toolkit.[52] CCAFS also built the capacity of national government decision makers from the Ministry of Agriculture and Livestock in Guatemala for them to use the climate-smart agriculture prioritization framework;[53]

(iii) At the regional level, CANARI organized a workshop for public-sector agencies, small-scale resource users and small and micro entrepreneurs in the fisheries and tourism sectors in the Eastern Caribbean in order to build a common understanding of the climate change threats in coastal and marine areas and to foster collaboration among the participants;[54]

(c) Meetings and workshops were organized to provide technical support for the implementation of specific adaptation activities as well as for externally funded projects or programmes. For instance, CANARI assisted in the participatory process to draft Montserrat's climate change policy and accompanying action plan and facilitated a participatory three-dimensional modelling process for spatial planning to improve resilience to climate change in the Soufrière/Scotts Head/Gallion area of Dominica.[55] IUCN built the capacity of local communities, reserve staff and local and regional authorities for them to use participatory methods in selecting and designing ecosystem-based adaptation

[49] CCCCCLAC02 and IUCNLAC03.
[50] IAILAC04.
[51] CCAFSLAC01 and CCAFSLAC02.
[52] CANARILAC04.
[53] CCAFSLAC03.
[54] CANARILAC01.
[55] CANARILAC03.

measures as part of an IUCN–UNDP–UNEP ecosystem-based adaptation project in a biosphere reserve in Peru.[56]

36. The various meetings, workshops and capacity-building activities resulted in: constructive subnational or national dialogues on adaptation; the strengthening of the capacity of key stakeholders, including in relation to methods and tools for adaptation planning; the design and implementation of adaptation plans, measures and activities at various governance levels; the establishment of new institutional set-ups (such as the local technical agroclimatic committees, established with the Ministry of Agriculture and Rural Development of Colombia)[57] to facilitate exchanges of information and continuous learning as well as adaptation planning, monitoring and evaluation; the enhancement of stakeholder engagement and increased support for the implementation of adaptation activities; and the development of collaboration between diverse stakeholders, nationally or regionally.

37. All of the knowledge-sharing activities in the region stem from collaboration between the above-mentioned organizations, the ministries of agriculture and environment of various countries, local meteorological institutes and local associations and federations. Universities and research centres in the north and south also played a major part in providing different types of technical and scientific support, including the University of Oxford, the University of East Anglia, Tulane University, the Universidad de Matanza and the Universidad de Camagüey.

38. The knowledge-sharing and training activities were financially supported by regional and international actors, such as the Organisation of Eastern Caribbean States, the Directorate-General for International Cooperation of the Dutch Government, GIZ, USAID and UNDP, as well as some research-funding organizations such as the International Development Research Centre and the Climate and Development Knowledge Network.

D. North America

39. The six submissions describing knowledge-sharing activities that benefited North American stakeholders were contributed by two international organizations (UNEP and UNECE) and one RCN (IAI).

40. The main thematic area of concentration for activities in North America is water resources, as shown in figure 4. This results from the fact that UNECE and IAI targeted North American stakeholders with their knowledge-sharing and training activities. The one cross-cutting activity reported consists of the communication programme of UNDP CIRDA, which targeted stakeholders globally. Conversely, the issue of adaptation planning for ecosystems was addressed by a regional actor, namely the Regional Office for North America of UNEP, which organized a global adaptation knowledge workshop and ecosystem-based adaptation symposium at the American National Adaptation Forum. The target audience and beneficiaries were government officials, practitioners, civil society, academia and the private sector.[58]

E. Europe

41. The four submissions describing knowledge-sharing activities that benefited European stakeholders were provided by international organizations, including three by UNECE and one by UNDP CIRDA, which targeted multiregional adaptation actors.

[56] IUCNLAC01.
[57] CCAFSLAC01.
[58] UNEPNA01.

42. The main thematic area of the activities in Europe is water resources, with a particular focus on adaptation to climate change in transboundary river basins and on transboundary flood-risk management.

43. The knowledge-sharing and training modalities employed in Europe include: the dissemination of a publication entitled *Water and Climate Change Adaptation in Transboundary Basins: Lessons Learned and Good Practices* produced by UNECE in partnership with the International Network of Basin Organizations;[59] the organization of numerous meetings and workshops within the framework of the global network of basins working on climate change adaptation; and the organization of the second workshop on transboundary flood-risk management.[60] All of the meetings and workshops targeted water and adaptation professionals from around the world. Pilot projects on adapting water management to climate change in the transboundary Dniester and Neman (Eastern Europe), Chu and Talas (Central Asia) and Amur and Argun (Asia) river basins were also implemented.[61]

44. The various meetings, workshops and capacity-building activities in Europe resulted in an increased awareness of the importance of transboundary cooperation on climate change adaptation and in strengthened capacity with regard to flood-risk management and adaptation strategies for water resources in general. The pilot projects resulted in the implementation of adaptation measures, such as the planting of trees and ecosystem restoration.[62]

45. All of the knowledge-sharing activities in the region stem from collaboration between UNECE and partners such as the International Network of Basin Organizations, the World Meteorological Organization, the Alliance for Global Water Adaptation, the Stockholm International Water Institute, GWP, IUCN, the Organisation for Economic Co-operation and Development, GIZ, the Organization for Security and Co-operation in Europe and Zoï Environment Network. The main financial partners were the Governments of France, Germany, the Netherlands and Switzerland.

III. Good practices and lessons learned

46. This chapter provides information on the good practices and lessons learned reported in the submissions made by RCNs and international organizations. It does not, however, reflect the wealth of information that they have produced, which is referred to in annex I and available on the adaptation knowledge portal. The good practices and lessons learned reported reflect the approaches used and analyses made by the contributing organizations; they provide neither exhaustive nor systematic coverage of the issues related to adaptation planning for ecosystems, human settlements, water resources and health or to processes and structures for linking national and local adaptation planning.

A. Knowledge-sharing and training modalities

47. In 16 submissions spanning the Asia-Pacific, Africa and Latin America and the Caribbean regions, both RCNs and international organizations shared good practices and lessons learned regarding ways of ensuring effective learning and knowledge dissemination in relation to different knowledge-sharing and training modalities (i.e. meetings and workshops, capacity-building activities, knowledge products and online forums). Such good practices and lessons learned are instrumental in drawing recommendations for other

[59] Available at <https://issuu.com/unpublications/docs/9789210571647>.
[60] UNECEEU01, UNECEEU02 and UNECEEU03.
[61] UNECEEU02.
[62] UNECEEU01 and UNECEEU02.

organizations willing to undertake knowledge-sharing activities, particularly in relation to ensuring the effective communication of key messages and actual learning among the target groups and to facilitating stakeholder engagement and collaborative relationships between participants in the course of knowledge-sharing events.

48. **Four key recommendations can be made in relation to ensuring effective communication and actual learning among the target groups**, of which the first three are relevant to both knowledge-sharing events and knowledge products:

(a) **Adapt the content and format of the product to the needs and abilities of the target groups**: in order to best tailor the workshop or meeting to its audience, knowing that the actual audience is not always the one that was invited or expected, it can be useful to have the participants communicate information on their background, questions and expectations early in the event. Knowledge-sharing events should always be relevant to the needs of the participants and practical. A particular challenge arises when the workshop requires certain skills (e.g. knowledge of Excel) or scientific background (e.g. in economics).[63] In that case, such requirements should be clearly communicated upfront so that the most relevant candidates from government bodies or organizations are nominated to participate in the event. Lastly, training packages can be organized into stand-alone modules for different target audiences. In the case of the training packages on health and climate change prepared by WHO, only one or two modules were targeted at policymakers to ensure that they got the most out of the training in a limited time;[64]

(b) **Convey concrete messages in simple language**: the local language should be used and the messages should be kept simple, particularly when the audience is very diverse, as in the case of multi-stakeholder events at village level. Complex issues should be broken down into simpler questions to be addressed in moderated group sessions;[65]

(c) **Contextualize information and knowledge using relevant examples**: it is important to convey theory and lessons learned in a regional, national and/or local context, even in training manuals. For instance, ecosystem services can be better understood by both district and village development committees when provided with practical examples linked to the livelihood-related issues of the local community and to the resources that they depend on.[66] Field trips or field sessions are particularly useful for participants with limited knowledge of an issue[67] and help them to apply new knowledge to concrete situations. WHO provided numerous examples from the region where WHO operates in its training package. Similarly, examples of good practices seem to be better received when they are drawn from regional experience rather than from more distant cases;

(d) **Establish a concrete and tangible follow-up in the case of a knowledge-sharing or training event**: in order to ensure that the information has been understood and is regularly enriched and updated, a follow-up of the workshop, meeting or capacity-building activity needs to be organized. The monthly meetings of the climate change coordination committee facilitated by AfDB have proved instrumental in updating knowledge and in addressing new challenges.[68] Given the experience of IUCN, the complexities of climate change and its implications may be particularly difficult to understand at the village level. In that case, multiple training sessions and refreshers may be necessary as well as regular contact with villagers, regular reinforcement of climate change concepts and regular guidance in the implementation of adaptation activities.[69] In addition,

[63] SPREPAP01.
[64] WHOAP03.
[65] UNDPAF02.
[66] UNDPAP02.
[67] CCAFSAP01.
[68] AFDBAF01.
[69] IUCNAP01.

online forums and newsletters can be instrumental in developing and promoting the understanding of communities of specific issues.[70] However, according to OSS, the challenge of engaging participation in online discussion forums should not be overlooked. The active participation of a forum manager or moderator is needed and could include targeted invitations to experts in order to stimulate exchanges.[71] Lastly, local radio talk shows should be used in order to sustain communication on adaptation to climate change with a wider audience.[72]

49. **Three main recommendations can be drawn from the submissions on how to ensure that meetings, workshops and capacity-building activities foster collective thinking, engage and empower stakeholders and facilitate communication flow and future collaboration among communities of practice**:

(a) **Organize multi-stakeholders events**: multi-stakeholder training sessions, such as those organized by ADPC for representatives of agricultural ministries, departments and universities, agricultural officers, extension officers and representatives of farming communities, were reported to improve coordination among farming communities, extension officials and other relevant officials and to enhance information flow from national organizations to local authorities and farming communities.[73] The roving training and workshop course organized by CCAFS for local researchers and villagers also increased the confidence of trained villagers in their interactions with fellow villagers, local and international partners and government officials;

(b) **Favour open discussion, including through informal exchanges and field trips**: in all knowledge-sharing events, it is important to arrange for open discussions (e.g. breakout groups) as well as informal exchanges, including during social time and field trips. Participant-led discussions can facilitate interaction. Delivery of focused presentations can be facilitated by providing a PowerPoint template with an outline to presenters.[74] Sufficient time should be allowed for discussion after each presentation. Moreover, informal exchanges, social time and field trips are instrumental in building trust among the participants and in paving the way for future collaboration;[75]

(c) **Hold meetings on a regular basis**: the organization of follow-up meetings on a regular basis appears to be the best way to build cohesive communities of practice. While online forums, portals or newsletters can be effective tools for sharing information, regular in-person workshops and training sessions were reported to yield better results with regard to building capacity and fostering collaboration.

B. Adaptation planning, including processes and structures for linking national and local adaptation planning

1. Key messages

50. On the basis of an analysis of the information provided in 19 submissions (i.e. 5 covering the Asia-Pacific region, 6 for Africa and 8 for Latin America and the Caribbean), the following good practices, lessons learned, challenges and possible ways to address them apply to all four thematic areas of ecosystems, human settlements, water resources and health as well as to processes and structures for linking national and local adaptation planning. The key lessons learned are that adaptation planning should be a participatory process and that it should contribute to institutionalizing adaptation planning and

[70] UNDPAF05.
[71] OSSAF02.
[72] CANARILAC02.
[73] ADPCAP02.
[74] UNEPAF03.
[75] IAIAF01.

implementation at all governance levels. The main challenge in the implementation and scaling up of the adaptation planning process is financial, which calls for more financial support to be provided for adaptation and the design of innovative financial mechanisms. Some good practices in the operationalization of those lessons learned, including possible ways to overcome a number of challenges specific to developing countries, are detailed below.

51. **A participatory approach is crucial to effective and inclusive adaptation planning and needs to be implemented at all stages of the planning process:**

(a) The information and knowledge base, from which all adaptation actions will be planned, needs to integrate local, traditional and scientific knowledge.[76] For that purpose, capacity-building may be required for all stakeholders to have a common understanding of the climate change adaptation challenges and opportunities.[77] Since achieving understanding of climate change impacts and adaptation challenges may be difficult by means of a single event, awareness-raising and capacity-building sessions should be organized regularly so as to clear up periodic misconceptions.[78] Building the capacity of local authorities and technical services with regard to general planning and decision-making tools also facilitates adaptation planning;

(b) A participatory approach to data collection, based on stakeholder consultations with several governmental and non-governmental organizations and community-based organizations, can be particularly helpful when socioeconomic data are missing. It also has significant benefits in terms of stakeholder engagement and project implementation;[79]

(c) The issue of the obsolescence of data should be taken into account by prioritizing data collection campaigns according to their immediate use by various government bodies and setting up a system for updating collected data within a chosen government body.[80] In this regard, a strong monitoring and evaluation mechanism[81] allowing public participation,[82] established from the start of the project, can be particularly instrumental. Such a monitoring and evaluation mechanism could benefit from the use of geospatial data[83] as well as from both synoptic (larger-scale) and local-scale weather monitoring systems;[84]

(d) A participatory mechanism should be set up to include all stakeholders (i.e. government and non-government stakeholders, such as local communities, civil society and the private sector) in the decision-making process. The engagement of all stakeholders is critical to ensuring an inclusive planning process and effective implementation.[85] Engaging stakeholders at the lowest accountable level will help manage conflict, build trust and promote ownership of adaptation interventions,[86] while the engagement of senior staff of national government institutions is critical to putting climate change adaptation on the political agenda and to facilitating implementation of adaptation plans.[87] For a community-based adaptation project, stakeholder engagement should not be limited to the stakeholders that are directly involved in the project planning and implementation, but should also

[76] IUCNAP03.
[77] IUCNAF02.
[78] CANARILAC03.
[79] CCCCCLAC01.
[80] UNDPAF03.
[81] IAILAC04.
[82] CANARILAC04.
[83] SERVIRAP01.
[84] UNDPAF04.
[85] ADPCAP01, UNDPAF03 and CCAFSLAC03.
[86] IUCNAF06 and IUCNLAC01.
[87] UNDPAF03 and IUCNAP03.

include local government representatives so as to ensure the sustainability of the measures to be undertaken. Community-based institutional arrangements also need to be strengthened[88] so as to ensure, for instance, that community-based native grassland management will be sustained over time in order to enhance pastoral livelihoods and increase resilience to extreme climatic events;[89]

(e) Conversely, engaging the private sector and financial actors in climate change policy and planning processes may create challenges that will need to be addressed on a case-by-case basis;

(f) Dialogue among a very diverse group of actors may be difficult. An external facilitator can play a critical role in addressing this challenge.[90] Visual methods can help both community stakeholders and decision makers to better understand impacts of climate change, assess vulnerabilities and plan for adaptation.[91] Lastly, the use of future scenarios has proven to be an effective tool for fostering dialogue when stakeholders from multiple sectors and governance levels need to come to a decision.[92]

52. **Institutionalizing adaptation planning at all governance levels is essential for turning adaptation strategies into concrete actions that will be widely supported and effectively implemented on the ground:**

(a) In order to institutionalize climate change adaptation planning and implementation at all governance levels, coordination bodies between different ministries and agencies at the national level should be formalized.[93] Using existing high-level institutional mechanisms for cross-sectoral coordination and action, such as a high-level cross-sectoral committee overseeing land-use planning and development, and expanding responsibilities and mandates to include climate change seem to be more effective than creating new institutional structures and processes. All mandates and responsibilities regarding adaptation should be clearly assigned among ministries, departments and/or government agencies. It is important for all adaptation strategies to be integrated into existing sectoral or cross-sectoral plans in order to be more effective and to maximize the use of public resources. Additionally, measures contributing to both adaptation and mitigation actions should be investigated. For instance, enhancing the use of renewable energy contributed to both adaptation and mitigation strategies in Montserrat;[94]

(b) At the local level, the main challenges related to adaptation planning and implementation result from the absence of clear guidelines concerning the allocation of resources for adaptation to climate change, the lack of resources for mainstreaming climate change and limited capacity;

(c) Regarding the objective of better linking national and local adaptation planning processes, the national government holds the main responsibility for establishing coordination bodies and procedures between different government levels and for providing clear guidelines and sufficient resources at all government levels to ensure adequate training of staff and effective coordination. Building the capacity of the personnel of central-level ministries and local government authorities appears to be a prerequisite for linking adaptation planning and action at all government levels as well as for facilitating multi-level coordination.[95]

[88] IUCNLAC01.
[89] IUCNLAC01.
[90] CANARILAC02.
[91] CANARILAC03.
[92] CCAFSLAC04.
[93] CANARILAC04.
[94] CANARILAC02.
[95] UNEPAF03 and IUCNAF03.

53. **Addressing the financial challenge of scaling up adaptation planning and action:**

(a) The main barrier to scaling up adaptation planning and action remains the difficulty of accessing climate finance and the fact that it is essentially donor-driven[96] in a context in which national governments cannot dedicate sufficient public resources to adaptation. This shortage of finance for adaptation results in a lack of commitment to funding local-level plans and multi-year programmes of action;[97]

(b) Multilateral donors tend to allocate far greater resources to mitigation than to adaptation projects and programmes and may not have developed inclusive approaches to addressing both challenges simultaneously.[98] Some innovative financing mechanisms still need to be developed to address this challenge.[99]

2. Ecosystems

54. Nine submissions, including five on the Asia-Pacific region, three on Africa and one on Latin America and the Caribbean, shared good practices and lessons learned related to the integration of ecosystems into adaptation planning by addressing ecosystem resilience, enhancement of (agro)ecosystem services, watershed-level adaptation and ecosystem-based adaptation. A key message is that the preservation and/or restoration of local ecosystems are connected to the issue of river basin management and to agricultural practices owing to ecosystems' larger ecological and socioeconomic contexts. In order to operationalize this integrated approach to sustainable climate-resilient land and water management, it is essential to establish a participatory planning process, new institutional set-ups and coordination mechanisms, as well as to define locally relevant adaptation strategies. Good practices and lessons learned, including possible ways to overcome existing challenges, are presented below.

55. A**dopting an integrated approach to sustainable climate-resilient land and water management is crucial to ensuring the enhancement of ecosystem services, food security and water security.** Several submissions argued for a comprehensive long-term and integrated programmatic approach that incorporates ecosystem conservation with rural development, disaster risk reduction and climate change adaptation.[100] From a sustainable agriculture point of view, this implies promoting agroforestry, adopting new technologies and cultivars, developing a holistic approach to water harvesting and maintaining ecosystems. In that regard, sustainable land-use management plans, which define and regulate different land-use types such as intensified agriculture, agroforestry, ecological restoration, natural regeneration, coastal zones, conservation and urban expansion, can be particularly instrumental.[101]

56. **Ensuring participatory knowledge management and decision-making processes through new institutional set-ups and coordination mechanisms is essential to operationalizing the integrated approach:**

(a) In order to understand local vulnerabilities to climate change, up-to-date scientific data such as climate projections and impacts on livelihood sectors and the perspectives of the community are equally important.[102] It is also critical that the knowledge base be updated and enriched beyond vulnerability assessment by establishing a participatory knowledge management system so as to promote an evidence-based decision-

[96] CARECAP01.
[97] CANSAAP01.
[98] AFDBAF01.
[99] CANARILAC04.
[100] IUCNAF05 and ADPCAP01.
[101] ADPCAP01 and ADPCAP02.
[102] IUCNAP02.

making culture.[103] The effective engagement of stakeholders, including local communities, village development committees and district-level line agencies, was highlighted as a key success factor in identifying both options for ecosystem-based adaptation and key agents for implementation;[104]

(b) The setting up of a stakeholder forum, including both government and non-government actors, such as in the case of the Mount Elgon Stakeholders Forum, can play a major part in sharing lessons learned, closing coordination gaps, leveraging stakeholder efforts and influencing policymaking processes.[105] Such a forum can be set up within a larger institutional framework, such as the Lake Victoria Basin Commission institutional framework for managing the Mount Elgon ecosystem under the Man and Biosphere Programme in the case of the Mount Elgon project. The establishment of monitoring and management committees, involving governmental officials, extension officers, the farming community and research organizations, can also be instrumental in facilitating communication flows and in providing technical support to farmers with the utilization of weather and climate information and the adoption of new technologies for the planning of their activities. For that purpose, some training on ecosystem resilience may need to be provided to relevant government officials and research organizations;[106]

(c) Establishing community committees (e.g. for forest or water management) is crucial to sustaining adaptation activities over the long term, while the involvement of government agencies and partner organizations could contribute to the scaling up of those activities.[107]

57. **The resulting adaptation strategies should address the local ecological challenges without underestimating the socioeconomic needs of the local population:**

(a) A number of strategies for ecosystem-based adaptation were presented in the submissions, which include ecosystem management and restoration of degraded ecosystems as an appropriate action for disaster risk reduction in river deltas and estuaries,[108] forest landscape restoration and the improved management and extension of the network of protected areas,[109] as well as the diversification of crops and livestock as a complementary strategy;

(b) Such strategies involve different costs and benefits over time, which will be borne unevenly by different socioeconomic groups and should be discussed openly during the adaptation planning process;[110]

(c) In order to implement such strategies, training courses will need to be provided to multiple stakeholders. Training courses on agroecosystems, as well as training courses on ecosystem-based adaptation as a disaster risk reduction strategy, were seen as priorities in the Asia-Pacific region;[111]

(d) As part of those strategies, adaptation activities that are directly related to people's livelihoods and that are based on locally available knowledge tend to be more widely supported by community members,[112] while lessons learned are easier to share with other communities living in similar contexts. However, the scaling up of those activities is generally limited owing to insufficient budget allocations. In turn, limited budget

[103] IUCNAF05.
[104] UNDPAP03.
[105] IUCNAF05.
[106] ADPCAP01.
[107] IUCNAP02.
[108] ADPCAP02.
[109] IUCNAF04.
[110] CCAFSLAC03.
[111] ADPCAP02.
[112] IUCNAP02.

allocations raise the issue of the provision of and access to sustainable financing mechanisms for ecosystem-based adaptation.[113]

3. Human settlements

58. Good practices and lessons learned were communicated in the three submissions that covered human settlements, and more particularly in the submission from UN-Habitat on the City Resilience Action Planning Tool for small and medium-sized cities in sub-Saharan Africa. The key messages are: to develop simple and practical planning support tools and methods; to implement a participatory and inclusive planning process in order to build ownership of adaptation measures; and to clarify responsibilities within the municipality so as to facilitate the development of concrete plans of action. It is important to note that the following good practices and lessons learned essentially address opportunities and challenges related to urban human settlements.

59. **Simple and practical adaptation planning tools and methods can play a major part in facilitating adaptation planning at the city level:**

(a) Key messages and concepts for urban resilience and adaptation planning need to be communicated using simple and contextualized language, didactic materials and a variety of other means, such as games, movies, group discussions and practical exercises;

(b) The planning tool should be simple enough to be understood by municipal staff, local leaders and a large segment of the targeted population. It should be disseminated through cascading training of trainers at different government levels;

(c) The participatory mapping technique is a critical element of effective adaptation planning, since the map represents a tool whereby all stakeholders can recognize their territory, interact and identify jointly viable and concrete solutions on the basis of geographical reality.

60. **Implementing a participatory and inclusive planning process is crucial to building ownership and empowering stakeholders to effectively implement adaptation activities:**

(a) Participatory mapping and other inclusive approaches that leverage local knowledge are effective methodologies for informing resilience and adaptation planning, particularly for municipalities with limited human, technical and financial capacities;

(b) A planning process led by the municipality with the participation of all relevant local stakeholders increases the ownership of the plan, mainstreams adaptation in the different sectors and facilitates future implementation. The level of local ownership of the urban resilience and adaptation plan greatly depends on the leadership of the municipal and local authorities. Therefore, local ownership of the planning process is a necessary condition for effective implementation and constitutes a critical element for success.

61. **Clarifying responsibilities within the municipality is a prerequisite for developing concrete plans of action:**

(a) Assigning clear responsibilities at the local level for building urban resilience and reinforcing adaptation to climate change is critical to mainstreaming resilience into urban management;

(b) The urban resilience and adaptation planning process should involve all municipal departments so that planning becomes integrated, coherent and a corporate responsibility of the municipality. Urban adaptation and resilience-building should be considered as integral parts of the local development agenda;

[113] IUCNAF05.

(c) Planned priority actions need to be broken down into specific short, mid- and long-term activities in order to facilitate implementation;

(d) It is important to look for endogenous and locally adapted solutions for building urban resilience and effective adaptation capacity. The appropriate mix of hard (e.g. infrastructure for coastal protection) and soft (e.g. a robust monitoring and evaluation system) measures should be implemented.[114]

4. Water resources

62. Good practices and lessons learned regarding adaptation planning for the sustainable management of water resources were shared in seven submissions. Two submissions focus on Asia-Pacific and two on Africa, while the other three submissions are based on the extensive work carried out by UNECE that addresses the issue from a global perspective. The first lesson learned that can be drawn from the submissions is to develop participatory adaptation planning at the watershed level. However, in order to improve the management of water resources, it is crucial to look at the river basin scale and implement transboundary water management when necessary. Related challenges regarding river basin and transboundary water management, as well as good practices and lessons learned introducing possible ways to address them, are presented below.

63. **Participatory adaptation planning should be developed at the watershed level in order to ensure sustainable climate-resilient water resources management:**

(a) In order to adequately assess watershed vulnerability, it is imperative to take into account the interrelations and interdependencies of the socioeconomic and political contexts on the one hand and of the watershed ecosystem on the other hand. The complexities of socioecological systems should be fully embraced and the scale of the analysis should be carefully thought about.[115] Participatory vulnerability and adaptation assessment can contribute to ensuring that the interests of vulnerable groups and the practices of all stakeholders (including women) are considered;

(b) Stakeholder engagement should be sustained throughout all stages of the adaptation process. Effective and sustained community engagement can result in the development of local institutions for water management, such as water user committees or associations, which generally contribute to increasing project sustainability, including ensuring communities' contributions to the operational costs.[116] Facilitating and sustaining community engagement will require capacity-building programmes for different groups. Capacity-building programmes targeting women in local communities were reported to enhance water governance in the Middle East and North Africa region;[117]

(c) It is important to engage government stakeholders at multiple administrative levels from the vulnerability assessment stage in order to ensure that they fully support decisions and outcomes throughout the process.[118] Their engagement is also critical to ensuring that water security and climate resilience are integrated into different sectoral planning processes, which in turn will improve financial support and sustainability;

(d) A plan for monitoring, learning and evaluation should be implemented.

64. **The challenges related to the management of transboundary water resources need to be addressed to achieve effective adaptation planning.** Adaptation within a transboundary basin is a challenge as it requires strong cooperation between the riparian countries. Conversely, it is indispensable to achieving efficient and effective adaptation and

[114] UNHABITATAF01 and IUCNAF01.
[115] GMSCEPAP01.
[116] UNDPAF03.
[117] IUCNAP03.
[118] IUCNAP03.

it offers the opportunity of pooling available data, tools, methods and resources. The following good practices and lessons learned focus on facilitating the implementation of transboundary water management, with a particular emphasis on transboundary flood-risk management:

(a) Finding a common interest is essential to initiating collaboration between countries and to overcoming institutional and cultural differences. The most obvious common interest is in reducing economic damage caused by floods; a related one could be the initiation of a technical dialogue on the issue. However, experts should not work in isolation. Decision makers from all countries represented in the transboundary river basin need to be involved in the process from the beginning, including through regular working group meetings;

(b) Proper institutional arrangements are crucial for transboundary cooperation and could be based on a transboundary agreement;

(c) Joint vulnerability assessment offers the opportunity to share data and harmonize models and methods, including for the elaboration of joint scenarios. Access to comprehensive information and data from the entire basin is necessary. Such data are instrumental in establishing a wider ongoing process of learning, monitoring and evaluation. Furthermore, flexibility in data collection as well as in the use of models and methods is needed to improve the flood forecasting system in relation to changes in flood regimes;

(d) An adaptation plan should be developed on the basin scale in relation to terrestrial and coastal management plans to ensure that flood risks are taken into account in future development. Flood protection should be linked with ecological and recreational objectives. Such a plan should be flexible in order to adjust to changing climatic conditions and evolutions in the socioeconomic profile of the population. The plan should be designed with the involvement of representatives of all sectors and countries represented in the transboundary river basin that will be affected in either a positive (e.g. reduced flooding) or negative (e.g. restricted economic activity in the area) way. It is also important to ensure synergies and linkages between plans developed at different government levels (i.e. local, national, regional and transboundary). As a result, the planning process becomes more transparent and less resistance may be met at the time of implementation;

(e) Low- or no-regret adaptation measures can be implemented, although the relevant vulnerability and impact assessment is still ongoing;

(f) For each river basin, it is important to find the appropriate mix of structural and non-structural adaptation measures (e.g. structural measures to protect urban areas combined with emergency planning and flood proofing). At any rate, adaptation measures should not transfer vulnerability within the basin to another location. It is also recommended to take mitigation aspects into account when developing adaptation measures.[119]

65. **The challenges of insufficient financial and political support need to be overcome in order to scale up the development of adaptation policies for water resources:**

(a) In many developing countries, the main obstacle to developing and implementing adaptation policies for water resources is the lack of funding from public resources and thus the high dependence on external sources of funding;

(b) The lack of funding from public sources can be partly explained by a lack of political willingness to take up the issue and allocate sufficient resources in the national budget. Stronger evidence of the various negative impacts of unsustainable water

[119] UNECEEU1, UNECEEU2 and UNECEEU3.

management on growth and development is needed to convince governments, private companies and NGOs to address the issue of sustainable water resources management;

(c) Regarding arguments to support a more integrated approach to the sustainable management of land and water resources, the economic value of ecosystems in relation to water resources management seems to be poorly understood and rarely articulated.[120] Ecosystem valuation can play a major part in asserting the economic value of ecosystem services, including in relation to water resources management, and could contribute to building the evidence base of the benefits to the integrated approach for communication to both governments and the private sector.

5. Health

66. A limited number of good practices and lessons learned in relation to adaptation planning for health were shared in four submissions, including two for the Asia-Pacific region and two for Latin America and the Caribbean. The key message is to ensure wide stakeholder engagement and establish open communication channels from the start of the adaptation planning process. Lack of political support is identified as the main challenge to scaling up adaptation actions in the health sector.

67. **Ensuring effective multi-stakeholder engagement in the adaptation planning process facilitates the implementation of activities.** Ministries of health, local universities and local communities were considered as the primary stakeholders whose engagement should be prioritized within the framework of adaptation planning for the health sector in the submissions addressing Latin America:

(a) The engagement of local communities requires regular meetings, two-way exchange of information and particular attention to maintaining trust and the interest of both local inhabitants and local authorities in the activities;

(b) The engagement of the ministry of health could be fostered by regular reporting on the activities, the organization of a discussion forum and training sessions. The participation of ministry personnel in training activities could facilitate the replication of such activities, for example for better rodent-borne disease control.[121]

68. **Developing the evidence base in favour of adaptation can play a critical part in garnering political support.** The lack of support and commitment of policymakers seems to be a major impediment to the broader implementation of adaptation planning and action in the health sector. Demonstrating good practices and building the evidence base could contribute to garnering more political support.[122] The expertise on climate change and health is not sufficiently developed in many regions, which leads to a dependence on international experts[123] and limits the scope of adaptation actions implemented on the ground.

IV. Conclusions and next steps

69. The following concluding remarks and suggestions for next steps are based on an analysis of the 68 submissions on knowledge-sharing and training activities on adaptation planning processes addressing ecosystems, human settlements, water resources and health and on processes and structures for linking national and local adaptation planning. The findings presented in this document, however, do not necessarily cover all the knowledge-

[120] IUCNAF06.
[121] IAILAC03 and IAILAC02.
[122] WHOAP01.
[123] WHOAP03.

sharing and training activities that have been undertaken by RCNs and international organizations worldwide in 2015.

70. The submissions provide evidence of the significant work carried out by RCNs and international organizations that submitted, in collaboration with other organizations and different levels of government, in undertaking knowledge-sharing and training activities that inform adaptation planning processes on multiple scales. The benefits of such activities were documented in various submissions and are said to include, among others:

(a) Enhanced understanding of climate change adaptation challenges and opportunities in diverse sectors, leading to better-conceived adaptation planning;

(b) Effective stakeholder engagement contributing to increased ownership and facilitated implementation of the adaptation measures and activities;

(c) Strengthening of national, regional and international collaboration, which is likely to facilitate the exchange of information, build the knowledge base, foster new projects and programmes and help to secure international financing.

71. Regarding the most evident knowledge-sharing and training gaps, the consideration of gender issues and the inclusion of local, indigenous and traditional knowledge on and practices in adaptation seem to be rarely taken into account.

72. In terms of thematic areas of concentration, there seems to be significant overlap between ecosystem conservation and sustainable water resources management, especially at the watershed or river-basin level. Ecosystems and water resources need to be addressed on equally large and often similar scales so as to take into account their interdependencies. Besides, both are directly affected by agricultural practices. Therefore, it seems that a more integrated approach to adaptation planning that considers the interrelations between ecosystems, water resources and agriculture and food security could be more relevant than addressing these thematic issues independently. UNECE and UNEP have developed an important conceptual and empirical work on a 'water-food-energy-ecosystem nexus',[124] which could be built upon to inform the formulation of that integrated approach. Such an approach could also help better articulate the role of ecosystem services in water resilience. Lastly, including the issue of energy in the nexus would be relevant to better aligning mitigation and adaptation objectives, in line with the recommendations of various RCNs and international organizations.

73. The number of submissions on health and human settlements was limited. If this is due to RCNs and international organizations conducting a limited number of knowledge-sharing and training activities addressing these issues, it could be useful to investigate the activities of other stakeholders conducting such activities, including national or local-level NGOs, universities and research centres.

74. The analysed submissions indicate that many knowledge-sharing events depend on funding provided by multilateral and bilateral donors, which may hinder the delivery of long-term programmes of action. This may also constrain the implementation of capacity-building programmes that would address training needs at all government levels and of all relevant sectors in a comprehensive manner. A limited scope and effectiveness of awareness-raising and capacity-building activities, including in Asia-Pacific, Africa and Latin America and the Caribbean, might affect the scaling up of adaptation planning and action.

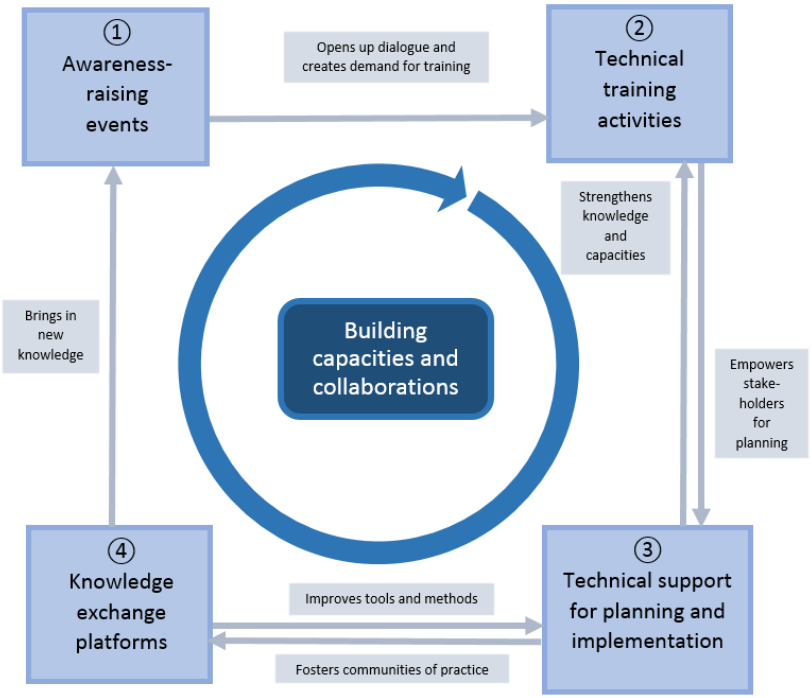
75. Regarding knowledge-sharing and training modalities, some region-specific experience and expertise regarding the knowledge-sharing and training activities described in the submissions could be shared for the benefit of stakeholders in other regions of the

[124] See <http://www.unep.org/esm/Waterecosystems/Thematicareas/Water-EnergyFoodnexus/tabid/131727/Default.aspx> and <http://www.unece.org/env/water/nexus.html>.

world. Some examples of region-specific activities include: training events for village-level adaptation planning with the support of local universities, research centres and NGOs in Asia-Pacific; multi-country knowledge-sharing events for both policymakers and the private sector in Africa; and knowledge-sharing and training events for stakeholders from different government levels (i.e. municipal, regional and national) in Latin America and the Caribbean.

76. Conversely, RCNs and international organizations from all regions have identified limitations associated with specific knowledge-sharing and training modalities, and highlighted some complementarities that could be built upon. In particular, stand-alone awareness-raising or capacity-building events may have limited influence over time. Technical support for the implementation of adaptation planning is often required to revive and strengthen the more theoretical knowledge acquired during awareness-raising and technical training sessions. Similarly, knowledge exchange platforms are particularly useful for fostering collective problem resolution by communities of practice as well as for improving the approaches, tools and methods that are applied locally. Lastly, the organization of regular in-person meetings or workshops contributes to improving communication flows and fostering collaboration at the national, regional and international levels. A more systematic approach based on the sequencing of knowledge-sharing and training activities could reinforce learning processes and help foster collaboration, strengthening complementarities between the four types of activity defined in table 1. The key components of this approach are outlined in figure 8.

Figure 8
Systematic approach to knowledge-sharing and training activities



77. According to this systematic approach, both web-based and printed knowledge products (e.g. publications, reports and other project documentation, training manuals and newsletters) can play a major part in making knowledge-sharing and training activities more efficient and in facilitating their dissemination and public outreach. However, such knowledge products and other online functionalities, such as exchange forums, cannot replace in-person knowledge-sharing and training activities.

78. Building on the good practices and lessons learned shared in the submissions and on the above concluding remarks, a number of possible next steps could be considered:

(a) The consideration of gender issues and the inclusion of local, indigenous and traditional knowledge on and practices in adaptation need to be given more importance in all tools and methods developed by RCNs and international organizations and should be promoted at all stages of the adaptation planning processes (from vulnerability and impact assessment to monitoring and evaluation), especially when designing new institutional set-ups to collect information, increase coordination and facilitate implementation;

(b) A cross-thematic and/or cross-sectoral perspective to adaptation planning need to be considered in the request for submissions under the NWP, in order to contribute to the strengthening and dissemination of an integrated approach to sustainable and climate-resilient land and water management;

(c) In order to ensure large-scale knowledge-sharing and training on climate change adaptation planning and implementation over time, particularly in Asia-Pacific, Africa and Latin America and the Caribbean, national institutions, including universities and research centres, should be targeted as part of a 'training of trainers' approach so that they can play a central role in generating locally relevant information and knowledge on adaptation as well as in building local capacity;

(d) In order to ensure that internationally funded knowledge-sharing and training activities are demand-driven, it could be useful to engage with RCNs and international organizations, as a possible set of activities under the NWP, in order to investigate whether there are mechanisms or processes in place that ensure that knowledge-sharing and training activities respond to the most pressing needs of policymakers, affected populations or other targeted groups of stakeholders;

(e) In order to facilitate the implementation of a more systematic approach to knowledge-sharing and learning such as the one described in figure 8, it could be useful to engage with RCNs and international organizations, as a possible set of activities under the NWP, to investigate whether there are mechanisms or processes in place that enable coordination between different adaptation knowledge providers and trainers at the regional or national level. Such coordination mechanisms or processes could improve the effectiveness and reach of activities that are currently implemented in parallel;

(f) Recognizing that there are still opportunities for systematic knowledge-sharing and training in various regions, an additional set of activities could be to strengthen the engagement with the RCNs and international organizations under the NWP and to develop new partnerships, including in the areas of health and human settlements, with a view to:

(i) Undertaking knowledge-sharing and training activities that are demand-driven, in coordination with other actors in the field;

(ii) Promoting a systematic approach to knowledge-sharing and training, including in all the activities carried out under the NWP;

(iii) Refining the systematic approach to knowledge-sharing and training activities over time, building on lessons learned from the activities undertaken under the NWP and from the experiences shared by the RCNs and international organizations;

(iv) Sharing the outcomes of these activities at key meetings and events, as appropriate.

Annex I

Adaptation-related knowledge-sharing and training activities reported in the submissions, by region

Table 2
Activities focusing on Africa

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
AFDBAF01	African Development Bank Group	Cross-cutting	Final report on the bank's Climate Change Action Plan 2011–2015 using the indicators from the monitoring and evaluation framework	<http://www.afdb.org/en/topics-and-sectors/sectors/climate-change/2011-2015-afdb-action-plan-on-climate-change/>
GWPAF01	Global Water Partnership – Central Africa Regional Water Partnership and Cameroon Country Water Partnership	Water	Capacity-building and knowledge-sharing for national- and regional-level stakeholders on project preparation related to water security and climate resilience	<http://www.gwp.org/GWP-Central-Africa/GWP-CAf-EN-ACTION/ACTIVITIES/WACDEP-a-lever-for-creating-water-security-and-climate-resilience-national-expertise/>
IAILAC04	Inter-American Institute for Global Change Research – AQUASEC: Center of Excellence for Water Security	Water	International water security network meeting	<http://aquasec.org/international-water-security-meeting/>
IUCNAF01	International Union for Conservation of Nature (IUCN) Central and West Africa Programme (PACO)	Ecosystems	Development of the West African coastal observation mechanism	<http://www.cse.sn/moloa> <https://www.iucn.org/fr/propos/union/secretariat/bureaux/paco/programmes/programme_marin_et_cotier__maco/projets/thematique__amenagement_integre_du_littoral_/erosion_cotiere_et_schema_damenagement_du_littoral_ouest_africain/>
IUCNAF02	IUCN PACO	Ecosystems	Training on the Partnership for Environment and Disaster Risk Reduction	<https://www.iucn.org/news_homepage/all_news_by_region/news_from_west_and_central_africa/>
IUCNAF03	IUCN PACO	Cross-cutting	Training on climate change integration into development	<https://www.iucn.org/news_homepage/all_news_by_region/news_from_wes

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
			planning	t_and_central_africa/>
IUCNAF04	IUCN PACO	Ecosystems	Protected Areas Resilient to Climate Change project	
IUCNAF05	IUCN Eastern and Southern Africa Regional Office	Ecosystems	Implementing a resilience framework to support climate change adaptation in the Mount Elgon region of Lake Victoria	Atlas of Mount Elgon: <https://www.dropbox.com/sh/4bko80gje7kt1h9/AAArXvXC1jBVfBfuCvG8fxOKa?dl=0> Documentary entitled "Think Nature": <https://www.youtube.com/channel/UCvTMoGodTM596KJrZLouCZQ/feed> <https://www.youtube.com/watch?v=U8BDCetdjkw&feature=youtu.be> <https://www.youtube.com/watch?v=U8BDCetdjkw&feature=youtu.be> (five-minute version) and <https://www.youtube.com/watch?v=e8YxZATAiDE> (20-minute version)
IUCNAF06	IUCN Eastern and Southern Africa Regional Office	Ecosystems	Regional training workshop for decision makers on valuing ecosystems in the Orange-Senqu river basin	
NEPADAF01	New Partnership for Africa's Development (NEPAD) Planning and Coordinating Agency (NPCA), acting as the secretariat of the TerrAfrica partnership on sustainable land and water management programme	Ecosystems	TerrAfrica knowledge platform	<www.terrafrica.org>
NEPADAF02	NEPAD NPCA, acting as the secretariat of TerrAfrica	Ecosystems	Lesotho's workshop and knowledge-sharing event in April 2015	<www.terrafrica.org>
NEPADAF03	NEPAD NPCA, acting as the secretariat of TerrAfrica	Ecosystems	Communication seminar for government communication experts on sustainable land and water management for TerrAfrica	<www.terrafrica.org>

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
			anglophone countries in Nairobi, Kenya, in August 2015	
OSSAF01	Sahara and Sahel Observatory	Cross-cutting	1. Regional exchange forum on adaptation to and mitigation of climate change (June 2015) 2. Regional training workshop on the Ex-Ante Carbon-balance Tool 3. Regional workshop on monitoring and evaluation and geographical information systems (15–17 February 2015, Addis Ababa, Ethiopia) 4. Regional workshop for improved understanding and application of Global Environment Facility tracking tools (28 September to 2 October 2015, Dakar, Senegal) 5. National workshops on geographical information systems and applied remote-sensing for monitoring and evaluation (September 2015, Addis Ababa, Ethiopia, and October 2015, Madani, Sudan)	BRICKS (Building Resilience through Innovation, Communication and Knowledge Services) geoportal is a centralized platform for publishing and sharing various resources and metadata via the Internet: <http://149.202.139.155:8080/geobricks/srv/eng/main.home> Information brochure about the monitoring and evaluation activities of the BRICKS project: <http://www.oss-online.org/sites/default/files/fichier/lvr-Bricks.pdf>
OSSAF02	Sahara and Sahel Observatory	Ecosystems	1. Thematic regional workshop on sustainable forest ecosystem management in arid and semi-arid zones to improve resilience to climate change and increase carbon sequestration 2. Study tour on sustainable forest ecosystem management in arid and semi-arid zones; case study on forests in Jordan	<http://www.oss-online.org/mena-delp/index.php/en/> <http://www.oss-online.org/mena-delp/index.php/en/ressources/other-publications/file/244-forests-ecosystems-management-approaches-to-face-climate-change-mena-region> <http://www.oss-online.org/mena-delp/phocadownload/amman_workshop_report_2015.pdf>
OSSAF03	Sahara and Sahel Observatory	Ecosystems	1. Sharing knowledge on best	<www.oss-online.org/rep-sahel>

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
			practices: publications and sensitization on climate change 2. Installation of 21 automatic weather stations in seven countries and realization of seven maps at national scale on land use and vegetation (These activities were carried out under the REPSAHEL project: enhancing the resilience of the Sahelian population to environmental changes)	
UNDPAF01	United Nations Development Programme (UNDP) Programme on Climate Information for Resilient Development in Africa (CIRDA)	Cross-cutting	UNDP CIRDA country project managers workshop	<http://www.undp-alm.org/projects/cirda/meetings-and-workshops; http://www.undp-alm.org/sites/default/files/uploaded-images/082515_082715_notes_workshop.pdf>
UNDPAF02	UNDP–Global Environment Facility CIRDA	Cross-cutting	Workshop on creating value-added weather and climate services through innovative public partnerships	<http://www.undp-alm.org/projects/cirda/meetings-and-workshops; http://www.undp-cirda.blogspot.com/2015/03/innovative-public-private-partnerships.html> <http://www.undp-cirda.blogspot.com/2015/07/win-win-solutions-linking-climate.html> <http://www.undp-cirda.blogspot.com/2015/04/building-partnerships-to-travel-last.html> <http://www.undp-cirda.blogspot.com/2015/07/3-2-1-innovation.html>
UNDPAF03	UNDP Regional Service Centre for Africa	Cross-cutting	Global exchange workshop on adaptation for food security and resilience	<http://undp-alm.org/projects/ccaf/meetings-and-workshops> Case studies developed on the basis of

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
				the workshop discussions are available at (under case studies) <http://undp-alm.org/projects/ccaf/reports-and-publications>
UNDPAF04	UNDP CIRDA	Cross-cutting	United States Trade and Development Agency training programme on information and communication technology for weather and emergency preparedness	<http://www.eventbrite.com/e/climate-information-early-warning-systems-training-program-registration-18104857115>
UNDPAF05	UNDP CIRDA	Cross-cutting	CIRDA communications programme	<http://www.undp-alm.org/projects/cirda> Blog: <http://www.undp-cirda.blogspot.com/>
UNECEEU01	United Nations Economic Commission for Europe (UNECE)	Water	Second workshop on transboundary flood-risk management	<http://www.unece.org/env/water/workshop_flood_risk_management_2015.html#/>
UNECEEU02	UNECE	Water	Global network of basins working on climate change adaptation	<http://www.unece.org/env/water/water_climate_activ.html>
UNECEEU03	UNECE	Water	Publication entitled "Water and Climate Change Adaptation to climate change in Transboundary Basins: Lessons Learned and Good Practices"	<http://www.unece.org/index.php?id=39417&L=0>
UNHABITATAF01	United Nations Human Settlements Programme, Regional Office for Africa	Human settlements	Elaboration and pilot testing of the City Resilience Action Planning Tool	<http://www.dimsur.org/>
WASCALAF01	West African Science Service Center on Climate Change and Adapted Land Use (WASCAL)	Water	Field facts for innovative crop insurance design	<www.wascal.org>
WASCALAF02	WASCAL	Water	Rainfall variability adaptation strategies: ex-ante assessment of supplemental irrigation from farm Ponds in southern Burkina Faso	<www.wascal.com>
WHOAF01	World Health Organization,	Health	Climate change and health in the	<http://www.degruyter.com/view/j/rev

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
	Eastern Mediterranean Regional Office, Centre for Environmental Health Action		Eastern Mediterranean countries: a systematic review	eh.2015.30.issue-3/reveh-2015-0013/reveh-2015-0013.xml>

Table 3
Activities focusing on Asia-Pacific

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
ADPCAP01	Asian Disaster Preparedness Center (ADPC)	Ecosystems	Training on ecosystem resilience in a changing climate	A local-level technology and policy intervention approach to restore paddy ecosystems in the Nilwala downstream, affected due to Nilwala flood protection scheme, southern Sri Lanka: <http://www.sciencedirect.com/science/article/pii/S2212567114009484>
ADPCAP02	ADPC	Ecosystems	Mainstreaming climate information application for the enhancement of agroecosystem services and functions	<http://www.sciencedirect.com/science/article/pii/S2212567114009484>
CANSAAP01	Climate Action Network South Asia – regional node of Climate Action Network International	Cross-cutting	Joint principles on adaptation – regional facilitation for Asia as part of Southern Voices on Adaptation	<www.cansouthasia.net> <www.southernvoices.net>
CANSAAP02	Climate Action Network South Asia – regional node of Climate Action Network International	Cross-cutting	Knowledge-sharing on adaptation practices with multiple stakeholders and policymakers	<www.cansouthasia.net> <http://www.asiapacificadapt.net>
CARECAP01	Regional Environmental Centre for Central Asia (CAREC)	Cross-cutting	Report on the status of climate change adaptation in Central Asia	
CARECAP02	CAREC	Cross-cutting	Regional conference on climate change in Central Asia: an opportunity for joint actions towards Paris 2015, 3–4 February 2015, Almaty, Kazakhstan	<http://carececo.org/en/news/the-conference-on-climate-change-in-central-asia/?sphrase_id=238>
CCAFSAP01	Regional office of CGIAR Research Program on Climate Change, Agriculture and Food	Cross-cutting	Training course/roving workshop on climate-smart agriculture and participatory methods, facilitation	<https://ccafs.cgiar.org/blog>

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
	Security (CCAFS) for South-East Asia		and community engagement techniques for climate-smart villages in South-East Asia	
CCAFSAP02	Regional office of CCAFS for South-East Asia	Cross-cutting	Regional seminar workshop entitled "Reporting climate change, agriculture and food security: Challenges and Opportunities for the Media" in South-East Asia	<https://ccafs.cgiar.org/regions/southeast-asia/research-stories>
GMSCEPAP01	Greater Mekong Subregion Core Environment Program	Ecosystems	Greater Mekong Subregion climate change adaptation round table	<http://www.gms-eoc.org/events/roundtable-discussion-on-climate-change-adaptation-in-the-gms-bangkok->
IAILAC04	Inter-American Institute for Global Change Research – AQUASEC: Center of Excellence for Water Security	Water	International water security network meeting	<http://aquasec.org/international-water-security-meeting/>
IUCNAP01	International Union for Conservation of Nature (IUCN) – country programme for the Lao People's Democratic Republic	Ecosystems	United States Agency for International Development (USAID) Mekong Adaptation and Resilience to Climate Change (Mekong ARCC) project	<http://mekongarcc.net/home>
IUCNAP02	IUCN Thailand	Ecosystems	Implementation of adaptation activities under the USAID Mekong ARCC project in four villages in Thailand's Chiang Rai and Sakon Nakhon provinces and organization of expert assessment mission in each province to evaluate the adaptation activities and disseminate lessons learned	<www.iucn.org/thailand> <www.mekongarcc.net>
IUCNAP03	IUCN Regional Office for West Asia	Water	The Nature and Water Knowledge Sharing Forum	<http://www.rknow.net/images/documents/RKNOWforumfinalreport.pdf>
SERVIRAP01	SERVIR-Mekong (regional hub) and SERVIR Global (global headquarters)	Cross-cutting	Needs assessment of geospatial data and technologies in the Lower Mekong region	<http://servir.adpc.net/knowledge-products/needs-assessment-geospatial-data-and-technologies-lower-mekong-

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
				region>
SPREPAP01	Secretariat of the Pacific Regional Environment Programme	Cross-cutting	Cost–benefit analysis of adaptation options within the Pacific Adaptation to Climate Change project	<www.sprep.org>
UNDPAF03	United Nations Development Programme, Africa Regional Service Centre	Cross-cutting	Global exchange workshop on adaptation for food security and resilience	<http://undp-alm.org/projects/ccaf/meetings-and-workshops> Case studies developed on the basis of the workshop discussions are available at (under case studies) <http://undp-alm.org/projects/ccaf/reports-and-publications>
UNDPAP01	United Nations Development Programme Capacity Building Programme on the Economics of Climate Change Adaptation	Cross-cutting	Information exchange and report formulation in preparation for the fourth regional training workshop	<http://www.undp-alm.org/projects/ecca-asia>
UNECEEU01	United Nations Economic Commission for Europe (UNECE)	Water	Second workshop on transboundary flood-risk management	<http://www.unece.org/env/water/workshop_flood_risk_management_2015.html#/>
UNECEEU02	UNECE	Water	Global network of basins working on climate change adaptation	<http://www.unece.org/env/water/water_climate_activ.html>
UNECEEU03	UNECE	Water	Publication entitled “Water and Climate Change Adaptation in Transboundary Basins : Lessons Learned and Good Practices”	<http://www.unece.org/index.php?id=39417&L=0>
UNEPAP01	United Nations Environment Programme (UNEP) Regional Office for Asia and the Pacific (ROAP)	Ecosystems	Vulnerability and impact assessment for adaptation planning in the Panchase Mountain Ecological Region of Nepal	
UNEPAP02	UNEP ROAP	Ecosystems	Comprehensive capacity development towards integrating ecosystem-based adaptation into the national- and local-level planning system in Nepal	
UNEPAP03	UNEP ROAP	Ecosystems	Ecosystem-based climate adaptation	

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
			planning at the subwatershed level of the Panchase Mountain Ecological Region in Nepal	
UNEPAP04	UNEP ROAP	Human settlements	Global Environment Facility/Least Developed Countries Fund project development workshop on urban ecosystem-based adaptation in Asia-Pacific	
WHOAF01	World Health Organization (WHO), Eastern Mediterranean Regional Office, Centre for Environmental Health Action	Health	Climate change and health in the Eastern Mediterranean countries: a systematic review	<http://www.degruyter.com/view/j/reveh.2015.30.issue-3/reveh-2015-0013/reveh-2015-0013.xml>
WHOAP01	WHO Regional Office for South-East Asia	Health	Regional workshop on protecting human health from climate change	
WHOAP02	WHO Regional Office for South-East Asia	Health	Review of climate change and health work in South-East Asia	
WHOAP03	WHO Regional Office for South-East Asia	Health	Training package on climate change and health	
WHOAP04	WHO Regional Office for South-East Asia	Health	Biregional training on climate change and health	

Table 4
Activities focusing on Latin America and the Caribbean

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
CANARILAC01	Caribbean Natural Resources Institute (CANARI)	Cross-cutting	Sensitization workshop on sharing best practices to build resilience in the tourism and fisheries sectors	<http://www.canari.org/sensitisation-workshop-on-sharing-best-practices-to-build-resilience-in-the-tourism-and-fisheries-sectors-in-the-oecs/>
CANARILAC02	CANARI	Cross-cutting	Updating Montserrat's national climate change policy and developing an action plan	<http://www.canari.org/technical-assistance-with-updating-montserrats-national-climate-change-policy-and-developing-an-action-plan/>
CANARILAC03	CANARI	Water	Participatory three-dimensional modelling of watersheds in Dominica	<http://www.canari.org/participatory-three-dimensional-modelling-of-

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
			for improving resilience to climate change	watersheds-for-the-project-adaptation-of-rural-economies-and-natural-resources-to-climate-change/>
CANARILAC04	CANARI	Cross-cutting	Participatory research to enhance climate change policy and institutions in the Caribbean: Caribbean Adaptation Rapid Institutional Analysis toolkit pilot	<http://www.canari.org/participatory-research-to-enhance-climate-change-policy-and-institutions-in-the-caribbean-aria-caribbean-toolkit-pilot/>
CCAFSLAC01	CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Latin America Regional Program	Cross-cutting	Farmers in Colombia combining scientific and local knowledge to manage agroclimatic risk	<https://ccafs.cgiar.org/es/mesas-tecnicas-agroclimaticas#.Vp0Rl_nhDIU>
CCAFSLAC02	CCAFS Latin America Regional Program	Cross-cutting	Development of regional adaptation plans based on future scenarios of Honduras	Blog on the workshop: <https://ccafs.cgiar.org/blog/cocoa-farmers-central-america-learn-plan-more-variable-climate#.VqcLWPkrIgs> Video and testimonies: <https://www.youtube.com/watch?v=ME3HxZzLoiw> Website of CCAFS Future Scenarios project: <https://ccafs.cgiar.org/scaling-out-scenario-guided-policy-and-investment-planning#.VqZfgfkrIgs>
CCAFSLAC03	CCAFS Latin America Regional Program	Cross-cutting	Climate-smart agriculture prioritization framework in Guatemala	Blog: <https://ccafs.cgiar.org/blog/making-smart-decisions-food-secure-future#.VqeIP_l97IV> Concept note: <https://cgspace.cgiar.org/handle/10568/68487 (SPN)> <https://cgspace.cgiar.org/rest/bitstreams/65222/retrieve (ENG)> Workshop 1:

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
				<https://ccafs.cgiar.org/blog/creating-learning-center-agricultural-development-guatemala#.VqImg_krLIU> Workshop 2: <https://ccafs.cgiar.org/blog/%C2%BFc%C3%B3mo-combatir-la-inseguridad-alimentaria-en-guatemala#.VqIqt_krLIU> Presentation of climate-smart agriculture prioritization framework and Guatemala pilot at the twentieth session of the Conference of the Parties: <https://ccafs.cgiar.org/blog/making-smart-decisions-food-secure-future#.VqIxDvkrKUl> (blog) <https://ccafs.cgiar.org/node/51659#.VqeJKvl97IV> (summary report) Poster entitled "Prioritizing Investments in Climate-Smart Agriculture in Guatemala": <https://www.weadapt.org/system/files_force/caitlin_corner-dolloff.pdf?download=1>
CCAFSLAC04	CCAFS Latin America Regional Program	Cross-cutting	Scenario-guided development of Costa Rica's intended nationally determined contribution	Website of CCAFS Future Scenarios project: <https://ccafs.cgiar.org/scaling-out-scenario-guided-policy-and-investment-planning#.VqZfgfkrIgs>
CCCCCLAC01	Caribbean Community Climate Change Centre	Ecosystems	Production and dissemination of information on the economic valuation of ecosystems by watersheds	
CCCCCLAC02	Caribbean Community Climate Change Centre	Human settlements	Demonstration of the use of the weather generator tool in relation to health and human settlements	<www.caribbeanclimate.bz>

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
IAILAC04	Inter-American Institute for Global Change Research (IAI) – AQUASEC: Center for Excellence in Water Security	Water	International water security network meeting	<http://aquasec.org/international-water-security-meeting/>
IAILAC01	IAI	Water	Sensing the Americas' freshwater ecosystem risk from climate change: analysis of the socioenvironmental evolution of the Sauce Grande river basin in Argentina	<http://www.safer.conicet.gob.ar/>
IAILAC02	IAI	Health	Qualitative and quantitative data collection and analysis on the effects of anthropogenic habitat perturbation on rodent population dynamics and the risk of rodent-borne diseases	<http://raices-ecochangeresearchnet.com>
IAILAC03	IAI	Health	Biosafety measures and processing of rodent samples during field collections concerning the effects of anthropogenic habitat perturbation on rodent population dynamics and the risk of rodent-borne diseases	<http://raices-ecochangeresearchnet.com>
IUCNLAC01	International Union for Conservation of Nature (IUCN) Regional Office for South America	Ecosystems	On-ground implementation of ecosystem-based adaptation measures in a protected area of Peru (linking local and national adaptation planning)	<http://iucn.org/es/sobre/union/secretaria/oficinas/sudamerica/sur_proyectos/?11615/AbEPeru>
IUCNLAC02	IUCN Regional Office for Mexico, Central America and the Caribbean	Ecosystems	Regional conservation forum held in Panama: workshop and design of a coastal marine adaptation planning tool	
IUCNLAC03	IUCN Regional Office for Mexico, Central America and the Caribbean	Ecosystems	Development of a georeferenced inventory of ecosystem-based adaptation projects for Panama, Costa Rica, El Salvador, Honduras, Guatemala and Chiapas	

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
UNDPAF03	United Nations Development Programme, Africa Regional Service Centre	Cross-cutting	Global exchange workshop on adaptation for food security and resilience	<http://undp-alm.org/projects/ccaf/meetings-and-workshops> Case studies developed on the basis of the workshop discussions are available at (under case studies) <http://undp-alm.org/projects/ccaf/reports-and-publications>
UNECEAF02	United Nations Economic Commission for Europe (UNECE)	Water	Global network of basins working on climate change adaptation	<http://www.unece.org/env/water/water_climate_activ.html>
UNECEAF03	UNECE	Water	Publication entitled "Water and Climate Change Adaptation in Transboundary Basins : Lessons Learned and Good Practices"	<http://www.unece.org/index.php?id=39417&L=0>

Table 5
Activities focusing on North America

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
IAILAC05	Inter-American Institute for Global Change Research – AQUASEC: Center for Excellence in Water Security	Water	Water security workshop in Hermosillo, Sonora, Mexico	<http://aquasec.org/water-security-workshop-hermosillo-mexico/>
IAILAC04	Inter-American Institute for Global Change Research – AQUASEC: Center for Excellence in Water Security	Water	International water security network meeting	<http://aquasec.org/international-water-security-meeting/>
UNDPAF05	United Nations Development Programme Climate Information for	Cross-cutting	CIRDA communications programme	<http://www.undp-alm.org/projects/cirda> Blog: <http://www.undp-cirda.blogspot.com/>

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
	Resilient Development in Africa (CIRDA)			
UNECEEU02	United Nations Economic Commission for Europe (UNECE)	Water	Global network of basins working on climate change adaptation	<http://www.unece.org/env/water/water_climate_activ.html>
UNECEEU03	UNECE	Water	Publication entitled "Water and Climate Change Adaptation in Transboundary Basins : Lessons Learned and Good Practices"	<http://www.unece.org/index.php?id=39417&L=0>
UNEPNA01	United Nations Environment Programme, Regional Office for North America	Ecosystems	Global Adaptation Network workshop and ecosystem-based adaptation symposium at National Adaptation Forum	<http://www.nationaladaptationforum.org/>

Table 6
Activities focusing on Europe

Submission code	*Organization*	*Primary thematic area*	*Activity(ies)*	*Further information*
UNDPAF05	United Nations Development Programme Climate Information for Resilient Development in Africa (CIRDA)	Cross-cutting	CIRDA communications programme	<http://www.undp-alm.org/projects/cirda> Blog: <http://www.undp-cirda.blogspot.com/>
UNECEEU01	United Nations Economic Commission for Europe (UNECE)	Water	Second workshop on transboundary flood-risk management	<http://www.unece.org/env/water/workshop_flood_risk_management_2015.html#/>
UNECEEU02	UNECE	Water	Global network of basins working on climate change adaptation	<http://www.unece.org/env/water/water_climate_activ.html>

UNECEEU03	UNECE	Water	Publication entitled “Water and Climate Change Adaptation in Transboundary Basins : Lessons Learned and Good Practices”	<http://www.unece.org/index.php?id=39417&L=0>

Annex II

Tools and methods for adaptation planning referred to in the submissions

Table 7
Tools and methods for adaptation planning referred to in the submissions addressing ecosystems

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
ADPCAP02	The approach followed carrying out the project on mainstreaming climate information application for the enhancement of agroecosystem services and functions'	• Establishing a monitoring and management committee with relevant government officials, extension officers, the farming community and research organizations as members to guide farmers in utilizing weather and climate information as well as adopting new technologies for planning their activities (cropping season, sowing and harvesting dates, etc.) • Developing appropriate agriculture and livelihood options adaptable to agroecosystems, with a view to withstanding weather- and climate-associated risks • Linking national organizations with local authorities and the farming community for effective information sharing, with a view to facilitating proactive decision-making • Providing recommendations for Sri Lanka's national agricultural policy on best practices in mainstreaming climate information application and adaptive technological solutions for agroecosystem resilience	Asia-Pacific		✓	✓
CCCCCLAC01	Four-step methodology	1. Island characterization 2. Economic estimates of ecosystem goods and services, provided by island or watershed	Latin America and the	✓	✓	

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		3. Estimated changes provoked by climate change and human activity	Caribbean			
		4. Proposals for funding mechanisms for management of resources				
GMSCEPAP01	Ecosystem value online estimator tool	Allows users to obtain rapid ecosystem value estimates that can give a broader understanding of the potential economic value of ecosystem-based trade-offs with practical applications and scenarios. Calculates value ranges for ecosystems and their services on the basis of 508 assessments conducted in the Lower Mekong Basin. For further information, see <http://mekongarcc.net/ESV_tool/ESV.html>	Asia-Pacific		✓	
GMSCEPAP01	Multi-criteria analysis	An effective method for ranking investment alternatives, in which a multidisciplinary group of actors discusses and defines criteria that are contributing to a problem (or solution), each actor valuing the criteria from his or her own sectoral perspective. The resulting multisectoral 'criteria tree' is used to generate a suitability score using weighted linear combination. If the criteria are linked to map layers they become spatial multi-criteria analysis and the output will be a map showing the geographical distribution of suitability scores	Asia-Pacific		✓	
GMSCEPAP01	Agent-based modelling	A simulation methodology that is typically employed in situations where the behaviour of disaggregated system elements can be described but the overall system behaviour is unknown. In contrast to most modelling techniques, agent-based modelling allows for	Asia-Pacific		✓	

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		response functions to be defined not only in mathematical equations but also in qualitative logical structures. This advantage introduces the possibility to explicitly human decision-making processes. Connecting the multitude of system elements and their interacting behaviours provides the analytical capacity to understand emerging system-wide outcomes				
GMSCEPAP01	Bayesian belief network	A methodology for the development of tools that focuses on the probability of particular events. Based on the theorems of Bayes, it assumes that a situation eventuates if a series of conditions are met, which occur with a certain likelihood. Assuming the likelihood of these conditions is known, the probability of the actual event can be calculated. This concept of conditional probability has allowed for the development of a series of risk analysis tools applied in the context of climate change adaptation, which calculate how the risk of, for instance, landslides, salinity intrusion or inundation might respond to intervention options	Asia-Pacific	✓	✓	
IUCNAF01	Coastal issue and hazard forms for national reports of events		Africa	✓		
IUCNAF01	West Africa coastal master plan	Divides the West Africa coastline into 180 homogeneous sectors, forms an observation system and provides characterization criteria	Africa	✓	✓	✓
IUCNAF02	Toolkit for planning, monitoring and evaluating climate change adaptation capacity	The toolkit was shared and disseminated. It is composed of 11 tools: Tool 1: Vulnerability analysis and capacity to adapt to climate variation • To obtain a sketch map representation of	Africa	✓	✓	✓

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		resources (natural, physical, financial, social and human) available within a community as well as climate hazards related to each identified resource • To determine climate hazards that have the most serious impact on livelihood resources and to determine the most vulnerable socioeconomic groups • To determine coping strategies currently used within the community to address the hazards identified Tool 2: Community-based risk screening tool – adaptation and livelihoods • To refine the vulnerability analysis • To better understand the linkages between livelihood resources and climate-related hazards Tool 3: Participatory analysis of hazard-related vulnerability factors • To determine factors (exposure and sensitivity) that contribute to the vulnerability of communities vis-à-vis the climate hazards that they have to deal with • To establish a baseline for the impact of climate hazards on communities and their resources • To determine the capacity/means available to the most vulnerable groups and communities Tool 4: Vision–action partnerships • To record elements of the desired future conditions (vision) of each individual member of a community • To obtain agreement on a concerted vision • To articulate actions of different sectors and administrative levels				

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		• To identify partnerships that the community needs to realize its vision Tool 5: Outcome challenges or targeted outcomes for each partner/stakeholder • To select the stakeholders/partners (boundary partners) that the project intends to influence • To describe the expected behavioural change in each boundary partner if the project is successful Tool 6: Progress markers • To elaborate a graduated series of descriptions illustrating the gradual levels of change a boundary partner has to go through for the realization of the targeted vision • To better understand the complexity of the expected changes in order to achieve the vision Tool 7: Results chain • To select, using a results chain approach, the activities to carry out in order to strengthen the adaptive capacity of a community • To select outputs to be provided to boundary partners Tool 8: Matrix of monitoring and evaluation data for the identified actions • To provide a matrix including all information needed to implement efficient monitoring of activities • To assess costs and challenges related to the implementation of the monitoring and evaluation system Tool 9: Protocol for monitoring and evaluation of products, results and impacts • To define how data-related outputs, outcomes and impacts will be collected, analysed and disseminated				

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		• To set up a management information system Tool 10: Most significant changes • To collect testimonials about the most significant changes occurring in a community following a project's interventions • To record unexpected outcomes Tool 11: Outcome journal • To record the movement of progress markers as well as the behavioural changes in each boundary partner				
IUCNAF04	Global information system (GIS)based modelling tools and vulnerability maps		Africa	✓		
IUCNAF04	GIS-based conservation planning tools		Africa		✓	
IUCNAF05	Remote-sensing and GIS operated by the African Collaborative Centre for Earth System Science	Generates scientific information on the Mount Elgon ecosystem in Africa in relation to the identification of priority catchments and/or hotspots that are experiencing risks associated with climate change	Africa	✓		
IUCNAF05	Poverty and livelihood assessment toolkit	Used to generate socioeconomic information: wealth ranking, local landscape situation analysis, timeline and trends of major climate-related hazards/events, livelihood analysis, ranking the importance of natural resources to the local communities and problem/solution matrix. This information complements the natural science data (gathered by ACCESS) and informs the planning and implementation of the adaptation actions. In addition, it generates the socioeconomic baseline information against which change in the adaptive capacity of the people is to be measured	Africa	✓	✓	✓

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
IUCNAF05	Community environment action plan	Used in pilot villages to identify and prioritize climate change adaptation actions	Africa		✓	
IUCNAF05	Strategy and guidelines	Produced for integrating climate change adaptation approaches into transboundary ecosystem management in East Africa	Africa	✓	✓	✓
IUCNAF05	Training manual for grafted fruit tree raising and management	Assists district/county technical staff, extension workers and farmers	Africa		✓	
IUCNAF06	Vulnerability mapping	Reinforces the identification of hotspots, risks and vulnerabilities that have an impact on the water sector in the face of climate change, which informs the development of robust medium- to long-term plans to guide evidence-based decision-making processes	Africa	✓	✓	
IUCNAP01	United States Agency for International Development Mekong Adaptation and Resilience to Climate Change adaptation planning process	Links science and local knowledge (community climate story, scientific climate story, shared understanding and adaptation planning)	Asia-Pacific	✓	✓	
IUCNLAC01	Integrated participatory rural appraisal using a participatory action research approach	Each community selects a team of local researchers to participate together with a team of external experts (anthropologist, agronomist, archaeologist, hydrologist and pasture specialist) led by a scientific coordinator. The teams of local researchers include reserve staff belonging to each community. The main results are the design of ecosystem-based adaptation measures and agreement on the planning process for their implementation	Latin America and the Caribbean	✓	✓	
NEPADAF02	Disaster risk screening tools		Africa	✓		
OSSAF02	Livelihood-based vulnerability analysis	Applied to identify the most vulnerable livelihoods in the region	Africa	✓		

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
UNEPAP01	Ecosystem-based adaptation focused vulnerability impact assessment methodology and tools	Applied for assessing vulnerability, which is also shared with: (1) ecosystem-based adaptation partners in Nepal (United Nations Development Programme and International Union for Conservation of Nature); (2) relevant ministries and agencies at the national level; and (3) district line agencies in the Panchase Mountain Ecological Region of Nepal, the district development committee and the village development committee. Findings are shared with communities focusing on wards and subwatersheds	Asia-Pacific	✓		
UNEPAP03	Tools and methodology for ecosystem-based adaptation	Tools and methodology are applied for developing ecosystem-based climate adaptation planning at the subwatershed level in the Panchase Mountain Ecological Region of Nepal	Asia-Pacific	✓	✓	✓

Table 8
Tools and methods for adaptation planning referred to in the submissions addressing human settlements

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
CCCCCLAC02	Weather generator	Produces a daily time-series that can be used for vulnerability studies or compared with climatological data and outputs from runs of the PRECIS regional climate modelling system	Latin America and the Caribbean	✓		
UNHABITATAF01	City Resilience Action Planning Tool	Designed so that local governments can adapt and implement it with minimal intervention from outside	Africa	✓	✓	✓

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		technical experts, using practical methods to leverage local knowledge for understanding and planning resilience strengthening activities, including local government self-assessments, participatory risk mapping exercises and cross-sectoral action planning, all of which can be done by the local government engaging relevant stakeholders, most importantly the communities themselves. The tool is divided into three phases: phase 1 is intensive training with the goal of introducing and familiarizing city technicians and urban stakeholders with key concepts, good practices in urban management and the tool methodology and materials; phase 2 consists in three main assignments, each having a duration of one week and aimed at using local knowledge to collect and analyse relevant information: institutional self-assessment, participatory mapping at the community level and the discussion of findings and prioritization of actions; and in phase 3 the Resilience Action Plan (RAP) team leads a multisectoral RAP validation exercise among all relevant department staff of the local government, with the support of technical experts from the United				

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		Nations Human Settlements Programme and the Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience. Serves as a strategic implementation framework including short-, medium- and long-term activities to guide municipal officials, communities and other partners in improving their city's resilience and reducing risks				

Table 9
Tools and methods for adaptation planning referred to in the submissions addressing water resources

Case study code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
GWPAF01	Water, Climate and Development Programme material	Material produced on project preparation and fundraising is introduced through workshops and shared with participants	Africa		✓	
IAILAC04	Scenario planning	Allows a range of future possibilities (scenarios) to be integrated into decision-making	Latin America and the Caribbean		✓	
IAILAC05	Evaluation and monitoring of ecological systems		Latin America and the Caribbean	✓		✓
IAILAC05	Climate observations by local farmers in a watershed		Latin America and the Caribbean	✓		✓
IAILAC05	Monitoring of climate change adaptation strategies	The monitoring is done by farmers in an agricultural district of the Yaqui	Latin America and the Caribbean			✓

Case study code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		Valley				
IUCNAP03	Guiding toolkit for increasing climate change resilience	Developed throughout the Social, Ecological and Agricultural Resilience in the Face of Climate Change project and disseminated by the Regional Knowledge Network on Water, describes the logical and practical framework of activities on the basis of the involvement of those who are vulnerable to the impacts of climate change on water, which leads to improved local adaptation and to the development and implementation of resilience plans for towns, villages, districts and governorates. Advocates a process of collaboration through dialogue to bring about a change in the way that water-sector professionals and water users work with each other and with the social, environmental and agricultural sectors. Effectively, the toolkit aspires to support all those involved in the design of measurable, verifiable and reportable adaptation initiatives by providing step-by-step guidance. As such, it seeks to answer the following question: what are the basic steps involved in planning and designing an adaptation initiative?	Asia-Pacific	✓	✓	✓
UNECEEU01	Flood forecasting		Europe	✓	✓	
UNECEEU01	Flood risk mapping		Europe	✓	✓	
UNECEEU01	Flood risk management plans		Europe	✓	✓	✓

Case study code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
UNECEEU01	United Nations Economic Commission for Europe (UNECE) guidelines on sustainable flood prevention	Further information is available at <http://www.unece.org/fileadmin/DAM/env/water/publications/documents/guidelinesfloode.pdf>	Europe	✓	✓	✓
UNECEEU01	UNECE model provisions on transboundary flood-risk management		Europe	✓	✓	✓
WASCALAF01	West African Science Service Center on Climate Change and Adapted Land Use innovative crop insurance	The system of crop insurance is new in West Africa and so far based on climate indices (rainfall) and satellite data. The system has limits as it fails to take into account sensitive phases of the crop cycle, which may be more prone to climate and other environmental stresses. The system would reflect fairness and equity in the pricing decision	Africa		✓	
WASCALAF02	Farm ponds	Farm ponds are microbasins of about $300m^3$. Each farmer has to dig a farm pond close to his field to collect the run-off water during the rainy season. The water stocks in the farm pond are used to irrigate crops during long dry spells	Africa		✓	

Table 10
Tools and methods referred to in the submissions addressing adaptation planning in general or agriculture

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
AFDBAF01	Climate finance tracking tools	For the agriculture, water and sanitation, transport, energy and infrastructure sectors	Africa		✓	✓
AFDBAF01	Climate safeguard systems		Africa	✓	✓	
AFDBAF01	Climate Change Action Plan monitoring and evaluation framework		Africa			✓
CANARILAC01	Participatory three-dimensionally modelling (P3DM)	Activity 1: P3DM uses information and communication technology tools to facilitate participatory climate change vulnerability assessments addressing the challenge of effectively engaging a wide range of stakeholders (including those at different literacy and capacity levels) to capture local and traditional knowledge as well as stakeholder input on priority needs and opportunities for resilience-building Activity 2: Uses P3DM to facilitate the inclusion of local knowledge in spatial adaptation planning. P3DM allows stakeholders to note the impacts of climate change on their communities, assess vulnerabilities and discuss possible adaptation measures	Latin America and the Caribbean	✓	✓	
CANARILAC01	Caribbean Climate Online Risk and Adaptation TooL	An online support system for climate-resilient decision-making to identify actions that minimize climate-related loss, take advantage of opportunities and facilitate climate-resilient development	Latin America and the Caribbean		✓	
CANSAAP01	Joint principles on adaptation		Asia-Pacific		✓	
CANARILAC04	Adaptation Rapid	Provides civil-society organizations with a	Latin America		✓	✓

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
	Institutional Analysis toolkit	framework, methodology and approach for assessing national institutional capacity to effectively develop and implement climate change adaptation policy	and the Caribbean			
CCAFSAP01	Relevant tools in facilitating community/farmer participation	Participants are able to practice the use of participatory methods and tools to collect and analyse data on changing climate trends. They prepare action plans, building on the lessons learned from the course. The action plan ensures that the learning is translated into adaptation action planning to improve current work programmes and projects	Asia-Pacific	✓	✓	
CCAFSLAC01	Canonic correlation analysis model using the climate predictability tool	Used to build robust regression models that allow relating climate patterns, climate forcing in Colombia and in situ observations	Latin America and the Caribbean	✓	✓	
CCAFSLAC01	Aquacrop and Cropwat models of the Food and Agriculture Organization of the United Nations	Agroclimatic forecasts are generated by the models, which are calibrated to Colombian conditions for a good number of crops, including those addressed in the region (maize, rice, cotton, bananas, pastures, etc.)	Latin America and the Caribbean	✓	✓	
CCAFSLAC02	CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) future scenarios methodology	Used to guide and test climate change adaptation and mitigation policies for climate change, agriculture, environment and livelihoods. Since 2010, regional scenarios have been made for East and West Africa, South and South-East Asia, Central America and the Andes. To build regional scenarios, CCAFS convenes policymakers, businesses, non-governmental and civil-society organizations, researchers and media in each region. The multi-stakeholder groups pick out key uncertainties in the coming decades: climate change, for one, but also social, economic and political drivers of change. They craft stories of	Latin America and the Caribbean	✓	✓	

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		how climate impacts might combine with shifts in population, power structures or financial flows. Then they collaborate with modellers to quantify, model and refine four future scenarios. Food security trends are projected using the IMPACT model of the International Food Policy Research Institute, while the GLOBIOM model of the International Institute For Applied Systems Analysis is used to add land-use patterns. The final stories are told with words, numbers, maps and, in some regions, evocative images or interactive learning tools. The scenarios are used to guide regional policymaking and also specific national policies				
CCAFSLAC03	Climate-smart agriculture prioritization framework	A participatory process that links multiple analytical tools and methodologies to assess climate-smart agricultural practices, linking evidenced-based decision-making with stakeholder priorities. The framework can be applied to address climate change and vulnerability in the agricultural sector in subnational areas (such as the Guatemalan Dry Corridor) related to national priorities, or prioritization can be conducted at the local, national or regional level. It aims to create a decision-making forum for stakeholders to narrow down longlists of options into packages of practices for investment and scaling up. It uses a four-phase approach, which mixes analytical phases with stakeholder engagement. During the first phase the scope of the study is identified and in this context a longlist of potential climate-smart agricultural practices is developed and then assessed on the basis of indicators selected by the lead users of the framework. Stakeholders,	Latin America and the Caribbean		✓	

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		including academics, producers, donors, government decision makers and others then explore the results and trade-offs between different options in order to identify a shortlist of high-interest practices for further investigation. The economic costs and benefits of the practices are then thoroughly assessed and stakeholders gather in the final phase to discuss the results of the entire process and to prioritize climate-smart agricultural practices for investment portfolios				
OSSAF01	Monitoring and evaluation handbook	Developed (in French) as a reference document for the discussion on the development of a standard set of indicators for the 12 Sahel and West Africa Program national projects	Africa			✓
OSSAF01	Geoportal of the Building Resilience through Innovation, Communication and Knowledge Services project	Better institutional governance and informed decision-making based on evidence are key factors for the success of natural resource management strategies. The changes taking place at the level of the planning and adoption of better land-use practices require a sound knowledge platform. The geoportal aims to respond to that need	Africa		✓	
SERVIRAP01	Regional land-cover monitoring system	Produces high-quality regional land-cover maps and identifies land-cover changes in the Lower Mekong. Used to monitor land-use change and is eventually linked to existing ecosystem service valuations to determine how natural capital is changing throughout the Mekong region	Asia-Pacific	✓		✓
SERVIRAP01	Regional drought information system	An integrated system for drought monitoring, analysis and forecasting for planning and responding to droughts. Assists regional, national and local governments with seasonal drought forecasting, short- and long-term mitigation measures during and in advance of droughts and	Asia-Pacific	✓		✓

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
		crop yield forecasting				
SERVIRAP01	Flood extent mapping tool	Identifies how floods spread within the Lower Mekong Basin by using publicly available satellite imagery and radar data to support agencies concerned with flood disaster risk management and water management. The tool outputs assist end users with flood risk assessments, emergency response planning and fish habitat assessments, including in planning national and subnational adaptation strategies	Asia-Pacific	✓	✓	✓
SERVIRAP01	Water accounting (+) decision support tool	For better water governance and decision-making on water allocation and associated trade-offs, provides operational water budgets at monthly intervals using remote-sensing technologies, field-based calibrations and social contexts. Can be used for evaluating adaptation strategies, especially in areas of water scarcity and/or increasing demand	Asia-Pacific		✓	✓
SERVIRAP01	Virtual rain and stream gauge information service	Provides near real-time rainfall and stream flow data from publicly available satellite measurements from a ‘virtual’ network of rain and stream gauges widely distributed over the entire Lower Mekong region. Data set useful for calibrating climate models	Asia-Pacific	✓	✓	
SERVIRAP01	Xe Kong river system fish barriers data set	Assists planners in identifying potential barriers to fish movement that may result from modifications to the placement, design and operation of dams on the Xe Kong river. Can be used for evaluating adaptation strategies and infrastructure development alternatives, especially in areas where livelihoods are dependent on fisheries and/or agricultural systems that depend on the existing water allocation infrastructure	Asia-Pacific			✓
SERVIRAP01	Lower Mekong region	Provides the extent of inundation resulting from all	Asia-Pacific			✓

Submission code	*Tool/method*	*Description*	*Region*	*Vulnerability and impact assessment*	*Planning and implementation*	*Monitoring and evaluation*
	river impoundments data set	existing, under construction and planned dams. Can be used for evaluating adaptation strategies and infrastructure development alternatives, especially in areas where livelihoods are dependent on fisheries and/or agricultural systems that depend on the existing water allocation infrastructure				
SPREPAP01	Cost–benefit analysis toolkit and guidelines		Asia-Pacific		✓	

Annex III

Acronyms

ADPC: Asian Disaster Preparedness Center
AfDB: African Development Bank Group
ARIA: Rapid Institutional Analysis for Adaptation
AusAid: Australian Agency for International Development
CANARI: Caribbean Natural Resources Institute
CANSA: Climate Action Network South Asia
CAREC: Regional Environmental Centre for Central Asia
CCAFS: CGIAR Research Program on Climate Change, Agriculture and Food Security
CCCCC: Caribbean Community Climate Change Centre
CIRDA: Climate Information for Resilient Development in Africa
GIZ: Gesellschaft für Internationale Zusammenarbeit
GMS-CEP: Greater Mekong Subregion Core Environment Program
GWP: Global Water Partnership
IAI: Inter-American Institute for Global Change Research
IUCN: International Union for Conservation of Nature
Mekong ARCC: Mekong Adaptation and Resilience to Climate Change project
NEPAD: New Partnership for Africa's Development
OSS: Sahara and Sahel Observatory
P3DM: participatory three-dimensional modelling
RCNs: research centres and networks
SERVIR: SERVIR-Mekong geospatial data for development programme
SPREP: Secretariat of the Pacific Regional Environment Programme
UNDP: United Nations Development Programme
UNECE: United Nations Economic Commission for Europe
UNEP: United Nations Environment Programme
UN-Habitat: United Nations Human Settlements Programme
USAID: United States Agency for International Development
WASCAL: West African Science Service Center on Climate Change and Adapted Land Use
WHO: World Health Organization