

Submissions on the knowledge-sharing and training activities undertaken by regional centres and networks on adaptation planning processes and processes and structures for linking national and local adaptation planning¹

¹ The submissions constituted the basis of the information note entitled: Activities undertaken by regional centres and networks on adaptation planning processes and processes and structures for linking national and local adaptation planning ([FCCC/SBSTA/2016/INF.1](#))

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I. Asia Pacific

1. Mainstreaming Climate Information Application for Enhancement of Agro-Ecosystem Services and Functions

Asian Disaster Preparedness Center (ADPC)

Countries	Adaptation element	Activities
Sri Lanka; Viet Nam	adaptation planning and practices; communication and outreach/awareness; science and research; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Ecosystems, Linking local and national adaptation planning	Agro-ecosystem, disaster risk reduction, climate change adaptation, mainstreaming, capacity building

Description of the activities The project was an application of research and development to address the global program on Ecosystem-based Adaptation (EbA) and enhanced ecosystem services for disaster risk reduction (DRR) and climate change adaptation (CCA) in coastal areas and river basins. Therefore, with the aim of integrating ecosystem based DRR and CCA measures in river basin management strategies, plans, regulations and programs, the project tried to mainstream weather and climate information application and adaptive technological solutions for enhancement of agro-ecosystem services and functions in selected pilot sites, the Nilwala river basin in Sri Lanka and the Mekong river basin in Vietnam.

Description of the tool or method The approach followed while carrying out this project activity includes:

- Establishing Monitoring and Management Committee (MMC) with relevant governmental officials, extension officers, farming community, and research organizations as members to guide farmers to utilize 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 agro-ecosystems with a view to withstand weather and climate associated

risks;

- Linking national organizations with local authorities and farming community for effective information sharing to take proactive decisions.
- Providing recommendations for the “National Agriculture Policy in Sri Lanka” on best practices of mainstreaming climate information application and adaptive technological solutions for agro-ecosystem resilience.

Timeline The project started in December 2012 and was completed in December 2015.

Target audience and beneficiaries Ministry of Agriculture, Agricultural Departments, Agricultural Universities, Agriculture Officers, Extension Officer and Farming Community

Outcomes

- a. Improved coordination among farming community, extension officials and other relevant officials for planning cropping seasons to minimize negative impacts of weather and climate extremes.
- b. Enhanced information flow from national organizations to local authorities and farming community to take proactive decisions.
- c. Improved risk information by integrating indigenous knowledge with best practices to mitigate climate related vulnerabilities;
- d. Improved agro-ecosystem management to mitigate climate and weather related hazards.
- e. Enhanced process of mainstreaming weather and climate information application for DRR for improved agro-ecosystem health as well as agronomical livelihoods.

Implementing partners **Lead:**

Asian Disaster Preparedness Center (ADPC), Bangkok, Thailand

Collaborators:

Sri Lanka: University of Ruhuna, Ministry of Agriculture, Disaster Management Center, Department of Meteorology, Farmer’s Organizations in Nilwala Basin, District and Provincial Secretariat.

Vietnam: Sub-Institute of Meteorology, Hydrology and Climate Change (SIHYMECC), Institute of Meteorology, Hydrology and Environment

(IMHEN), People's Committee in Tranoc in Cantho province.

Good practice and lessons learned **Regarding adaptation planning:**

Floods and droughts affect agricultural production which is the source of income and livelihoods for small rural farmers. Most agricultural practices in developing countries are dependent on natural climate patterns. Therefore, a slight change in weather pattern may have serious impacts on farmer's income and stability. In order to prevent such losses, it is always encouraged to the farming community to follow the best agricultural practices that includes maintaining the environment, sustainable use of resources, adoption of new technologies, judicious use of fertilizers and pesticides, following proper rice planting methods, adjusting the rice planting season depending on the climate pattern, adopting water harvesting techniques and if possible to adopt organic rice as well as high yielding varieties that have the ability to withstand extreme conditions. Monitoring and Management Committee (MMC) introduced by the project was helpful in monitoring and evaluating relevant project activities and adaptation measures throughout the project. This project enhances the knowledge of farming community and extension officials on effective utilization of weather and climate information and adaptive technological solutions for short- and medium-term planning of their agricultural practices through a consultative process (MMC). Another good practice that the project has disseminated includes creating awareness on the consequence of climate change on rice production and livelihoods. The project also introduced technological solutions as well as new rice varieties tolerant to floods and droughts which saw it being adopted by farmers.

- At the beginning of the project, the farmers in both Sri Lanka and Vietnam did not have a good understanding on how to utilize weather and climate information and adaptive technological measures generated and disseminated by the national level organizations such as meteorology and agriculture departments, as these information are more technical in nature. However, towards the end of the project it was found that the awareness created by the project resulted in changing the mindset of farmers as it helped to simplify information in a simple language understandable to farmers. This was possible as the project was continuously mentoring the farmers with useful information from reliable source agencies.
- Adaptation of high yielding varieties that has the ability to withstand any changing environmental conditions is important for farmers. The lesson learnt while implementing the project suggest that farmers need to be aware

of the availability of such rice varieties and the merits of using them against the indigenous rice varieties to maintain the balance in the ecosystem.

- Another lesson learned during the project period was that the farmers had yet to acknowledge the relationship between the pests and local rice varieties, though they recognize the role of weed and wild rice species in the disease cycle.
- The study further created awareness by enabling the farming communities to maintain and adapt traditional rice genetic diversity to climate change, and to combine this with the provision of desirable genes for plant breeding and the introduction of new varieties.
- It is always important to document good practices learned from any project / effort for scaling up. This project was able to organize a national level workshop in Sri Lanka in collaboration with the Ministry of Agriculture to present the good practices on mainstreaming weather and climate information application and adaptive technological solutions and to make strong recommendations for the National Agriculture Policy, which is being reviewed by the Ministry in consultation with the respective organizations. This would improve the existing mechanisms of local level decision-making, such as seasonal meetings, by effective utilization of weather and climate information and technological solutions and conducting further research on adaptive technological solutions to minimize the effects of climate change on local livelihoods.

Regarding knowledge-sharing and training modalities:

Through this project strong collaborations between many different partners, involving both governmental and non-governmental organizations could be established;

- Good management strategies have been put in place for the duration of the projects and in a few cases involved adaptive management;
- Stakeholder involvement resulted in consultation and outreach;
- Adapting ecosystem based approaches by the farming communities resulted in benefits to both people and environment;
- Ecosystem based climate change adaptation has enormous potential for reducing loss and damage agricultural produce;
- Protecting the natural functioning of agro-ecosystem can provide multiple benefits in strengthening the resilience of farming communities.
- Early communication with local communities can forestall the common challenges through these types of projects;
- Demonstrating and communicating the science behind ecosystem based

adaptation would help both decision-makers and the public make informed choices;

**Further
information**

Publications:

- Weerasinghe, K.D.N., Basnayake, S., Arambepola, N.M.S.I., Rathnayake, U. and Nawaratne, C. (2014). A Local Level Technology and Policy Intervention Approach to Restore Paddy Ecosystems in Nilwala Downstream Affected due to Nilwala Flood Protection Scheme, Southern Sri Lanka. *Procedia Economics and Finance*, 18: 336-344. doi: 10.1016/S2212-5671(14)00948-4.
(<http://www.sciencedirect.com/science/article/pii/S2212567114009484>)
- K.D. N. Weerasinghe, Senaka Basnayake, N.M.S.I. Arambepola (2013) Policy Search for Restoration of Paddy Ecosystems in the Nilwala Downstream Area Affected due to Nilwala Flood Protection Scheme, Southern Sri Lanka, Paper accepted for publication in GAR15 – HFA THEMATIC REVIEW.
- (<http://www.preventionweb.net/english/hyogo/gar/2015/en/bgdocs/inputs/Weerasinghe,%202014.pdf>)

Awards:

RISK AWARD (Best Project Proposals 2014)

Jointly given by Global Risk Forum (GRF), UN-ISDR and Munich Re Foundation from Knowledge to Action

ADPC website: <http://www.adpc.net>

2. Training on Ecosystem Resilience in a Changing Climate
Asian Disaster Preparedness Center (ADPC)

Countries	Adaptation element	Activities
Sri Lanka; Viet Nam	adaptation planning and practices; communication and outreach/awareness; technology support; education and training; stakeholder involvement; institutional arrangements; capacity building	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Ecosystems, Linking local and national adaptation planning	Agro-ecosystem, disaster risk reduction, climate change adaptation, mainstreaming, capacity building

Description of the activities The project was an application of research and development to address the global program on Ecosystem-based Adaptation (EbA) and enhanced ecosystem services for disaster risk reduction (DRR) and climate change adaptation (CCA) in coastal areas and river basins. The project envisages strengthening the capacity of professionals working in basin development in protecting and restoring agro-ecosystem to maximize its protective function, introducing training and demonstrational programs.

Description of the tool or method The approach followed while carrying out this project activity includes:

- Capacity building of relevant governmental officials and research organizations on ecosystem resilience;
- Training courses on agro-ecosystems, especially their adaptation for livelihood improvement while maintaining existing natural balances;
- The training to provide in-depth understanding of ecosystems as natural dynamic systems, and encouraging participants to consider disaster risk reduction in all related planning efforts.

Timeline The project started in December 2012 and was completed in December 2015.

Target audience and beneficiaries Ministry of Agriculture, Department of Agriculture, Agriculture Officers, Extension Officer and Farming Community.

Outcomes

- a. Improved knowledge of farming communities and extension officials to utilize weather and climate information and adaptive technological solutions for their routing activities.
- b. Improved coordination among farming community, extension officials and other relevant officials for planning cropping seasons to minimize negative impacts of weather and climate extremes.
- c. Enhanced information flow from national organizations to local authorities and farming community to take proactive decisions.

Implementing partners **Lead:**

Asian Disaster Preparedness Center (ADPC), Bangkok, Thailand

Collaborators:

Sri Lanka: University of Ruhuna, Ministry of Agriculture, Disaster Management Center, Department of Meteorology, Farmer’s Organizations in Nilwala Basin, District and Provincial Secretariat.

Vietnam: Sub-Institute of Meteorology, Hydrology and Climate Change (SIHYMECC), Institute of Meteorology, Hydrology and Environment (IMHEN), People’s Committee in Tranoc in Cantho province.

Good practice and lessons learned **Regarding adaptation planning:**

During the implementation of the project period, a training course was developed to provide training awareness to the government officials and research organizations working in Environment, Agriculture, Irrigation, Disaster Management sectors and policymaking and legal bodies, Banks and Insurance companies etc. about how ecosystems deliver goods and services to them to improve their livelihood. The training course guides the stakeholders to understand the impacts of their activities and changing climates on the ecosystems and to provide guidance for possible technological interventions to mitigate those impacts and improve ecological resilience of their local

ecosystems. The training course in a way helped stakeholders to develop skills to enhance the existing knowledge and skills of officials and professionals on ecosystems management and restoration of degraded ecosystems, as an appropriate action for Disaster Risk Reduction (DRR) in river deltas and estuaries within the DRR domain. Some of the areas that course covered includes:

1. Understanding the ecosystem concept and thinking in an integrated manner for DRR application considering them as natural dynamic systems.
2. Familiarizing with ecological and economic importance of the agro-ecosystems and their adaptation for livelihood improvement while maintaining the natural balances.
3. Understanding weather and climate as well as weather observations and interpretation of data to optimize agricultural operations to meet the climate change associated extremes (floods, droughts, dry and wet spells, heat waves) to improve the economic and ecological returns of the ecosystems.
4. Enhancing knowledge and skills to assess the ecosystems and find the ways and means to improve the ecosystems health, through weather and climate data application, technology interventions and community mobilization.

This enabled the participants to learn practical weather observation and interpretation skills to better understand the ways in which the challenges caused by climate change can be overcome, and how economic and ecological returns of ecosystems can be improved. Upon completion of the training, it enhanced the participant's necessary skills to improve ecosystem health through climate data application, technological interventions, and community mobilization.

Another good practice that the project has disseminated includes creating awareness on the consequence of climate change on rice production and livelihoods. Active participation of extension officers and agriculture officers along with farmers also boosted the awareness and help disseminate updated information at a much quicker pace.

Some of the key lessons learned through dissemination of these training courses includes:

- The project was able to create awareness among the stakeholders on

ecosystem resilience and its complexities;

- The trainings and the field experiments conducted the project period made the stakeholders and farming communities familiarize to ecosystem and their ecological resilience capacities;
- Through these activities, the project could helped identify relationships about socioecological system;
- The project through its services has been able to provide public education on why and how to reduce consumption of threatened ecosystem services;
- People have been granted more access to information about ecosystem and decisions affecting their services through this project;
- Most importantly, through this project, the mindset of the farmers could be changed to adapt to new technologies and their willingness to use high yielding cultivars.

Regarding knowledge-sharing and training modalities:

Good practices:

- Integrating community and ecosystem based approaches for adaptation to climate change;
- Harnessing the management of ecosystems as a means to provide goods and services in the face of changing climate;
- Taking a holistic approach towards water harvesting;
- Promoting agro-forestry.

Lessons learned:

- Participatory decision making is very important;
- Involvement of government and non-government stakeholders is key to effective adaptation planning processes;
- Holistic approach to make farming communities understand the need to adapt to new technologies and cultivars for better sustainability and maintaining ecosystem.

Further information

Publications:

- Weerasinghe, K.D.N., Basnayake, S., Arambepola, N.M.S.I., Rathnayake, U. and Nawaratne, C. (2014). A Local Level Technology and Policy Intervention Approach to Restore Paddy Ecosystems in Nilwala Downstream Affected due to Nilwala Flood Protection Scheme, Southern

Sri Lanka. *Procedia Economics and Finance*, 18: 336-344. doi: 10.1016/S2212-5671(14)00948-4.

(<http://www.sciencedirect.com/science/article/pii/S2212567114009484>)

- K.D. N. Weerasinghe, Senaka Basnayake, N.M.S.I. Arambepola (2013) Policy Search for Restoration of Paddy Ecosystems in the Nilwala Downstream Area Affected due to Nilwala Flood Protection Scheme, Southern Sri Lanka, Paper accepted for publication in GAR15 – HFA THEMATIC REVIEW.
- (<http://www.preventionweb.net/english/hyogo/gar/2015/en/bgdocs/inputs/Weerasinghe,%202014.pdf>)

Awards:

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Jointly given by Global Risk Forum (GRF), UN-ISDR and Munich Re Foundation from Knowledge to Action. URL: http://www.munichre-foundation.org/home/Publications/RISKAward2014_First-hand-news.html

Photos on Training & capacity Building:

Sri Lanka

Vietnam

ADPC website: <http://www.adpc.net/igo/>

3. Joint Principles on Adaptation – Regional Facilitation for Asia as part of Southern Voices on Adaptation
 Climate Action Network South Asia (CANSA)

Countries	Adaptation element	Activities
Sri Lanka; Nepal; Viet Nam; Cambodia	adaptation planning and practices; communication and outreach/awareness; financial support; institutional arrangements; monitoring and evaluation; socio economic data and information; capacity building; education and training; knowledge management; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity; Other

Thematic areas	Key words
Ecosystems; Water resources; Human settlements; Human health; Linking local and national adaptation planning	Nation Adaptation Plans, Adaptation Policies, good practices, community based adaptation, South Asia

Description of the activities The Southern Voices on Adaptation project work includes advocacy and capacity building on adaptation related activities in promoting, and facilitating pro-poor and pro-vulnerable policies on adaptation. The project is based on 7 principles which the partners advocate for, to be included into the national policy planning, implementation and monitoring. In order to advocate these, and to share knowledge based on this, the project further carries out case studies on the different principles that partner organizations have committed to work on.

Description of the tool or method The main tool that was used for the work is the Joint Principles on Adaptation.

Timeline Time line: April 2014 to January 2016. The project activities have been extended till end of 2018, and will be carried on as the second phase of Southern Voices on Adaptation.

Target audience and beneficiaries	Policy makers, civil society organizations and networks, local communities.
Outcomes	<p>Finalizing the joint principles on adaptation (JPA) which will be a tool that can be used by partners and other stakeholders in promoting inclusive, participatory adaptation planning.</p> <p>Case studies on advocacy and adaptation actions.</p> <p>Knowledge sharing platform on adaptation actions, in South Asia with multi-stakeholders</p> <p>Contributing to developing the NAPs and INDCs in countries of the region. (More specifically in Sri Lanka).</p>
Implementing partners	<ul style="list-style-type: none"> ▪ Climate Action Network South Asia : Regional node for Climate Action Network International, regional facilitating partner for Southern Voices on Adaptation Programme, cansouthasia.net ▪ NGO Climate Change Working Group Vietnam : National Partner for coordinating the programme in Vietnam ▪ NGO Forum on Cambodia: National partner for the programme in Cambodia ▪ Cambodia Climate Change Network: Joint national partner for Cambodia ▪ National Steering Committee of CANSAs for Nepal, lead by LiBird Nepal : National partner for Nepal ▪ National Steering Committee of CANSAs for Sri Lanka, lead by Janathakshan: National partner for Sri Lanka ▪ CARE Denmark: The overall programme secretarial support for Southern Voices on Adaptation. ▪ For further information on partners please refer to this website: http://www.southernvoices.net/en/networks.html
Good practice and lessons learned	<p>Regarding knowledge-sharing and training modalities:</p> <p>Good Practices</p> <ul style="list-style-type: none"> ▪ Creating a bridge between traditional principles and official plans ▪ Influencing the Meteorological Policy ▪ Incorporating the JPA in the procedures of a National Implementing Entity ▪ Demonstrating relevance to INDC and other policy shifts

- JPA as a capacity building tool for community-based organisations
- Empowering local partners and local government
- Creating a bridge between traditional principles and official plans
- Enhancing credibility and reputation of civil society partners
- Harnessing the influence of faith leaders

Additional points:

The JPA have been used to assess how adaptation initiatives are implemented, not just planned. Implementation in practice can fall far short of what is written in policy documents.

The JPA are a valuable tool for engaging with local level government, not only the national ministries.

The JPA can in some countries have been usefully brought to the attention of the international agencies that are supporting national adaptation planning processes, such as UNDP and FAO, while respecting national sovereignty and ownership of the process.

The JPA has been promoted in work with particular sectors, such as agriculture, meteorology or disaster risk management, where there are strong overlaps with climate change adaptation.

Positive Lessons:

- The criterion that scores the highest is “National adaptation plans carry the authority to enable different government sectors to work in a coordinated way” (under Principle C, Mainstreaming and Coordination). This would indicate that climate adaptation is generally taken seriously, and considered to be a national priority, rather than relegated to being “merely” an environmental issue. Governments appear to recognise that climate change adaptation is not the responsibility of just one sector.
- Two criteria relating to vulnerability – relating to targeting the most vulnerable (in Principle E, Vulnerability and Diversity) and to analysing existing vulnerabilities (in Principle G, Evidence and Information) – also receive higher than average scores. This could indicate that, at least nominally, in most policies there is an intention for climate change adaptation to benefit the poorest and most marginalized.

Challenges Discovered:

Predictably, an area where policies are most consistently lacking is on finance. This probably reflects a generalised shortage of finance for adaptation, which in turn translates into a lack of commitment to funding for local level plans and multi-year programmes of action.

- Less understandable is the reluctance to open up adaptation finance to scrutiny. There was consistent low scoring on the criterion: “The implementation and financing of plans is periodically monitored by a body on which civil society is represented” This relates to wider issues of governance beyond adaptation.
- The JPA also seeks to introduce a safeguard against adaptation actions that have disproportionate negative impacts through the criterion “A secure mechanism for expressing grievances and seeking redress is available”. This is a criterion against which practically no policy rated well.

Further information

- Content, basis and use of the tool can be found through this link : <http://www.southernvoices.net/en/documents/key-documents/57-joint-principles-for-adaptation-version-3/file.html>
- The Civil Society Guide to LEG/NAP Technical Guidelines: <http://www.southernvoices.net/en/documents/key-documents/42-civil-society-guide-to-the-leg-nap-technical-guidelines/file.html>
- The report for the overall project containing the summary of the regional work could be found through this link:
- <http://www.southernvoices.net/en/documents/key-documents/58-putting-principles-into-practice/file.html>
- Other case studies on good practices: http://unfccc.int/files/adaptation/application/pdf/201509_can_sa_sri_lanka_led.pdf
- Southern voices adaptation project website: www.southernvoices.net
- CANSA website: <http://www.cansouthasia.net/>

4. Knowledge sharing on adaptation practices with multi-stakeholders and policy makers

Climate Action Network South Asia (CANSA)

Countries	Adaptation element	Activities
	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; monitoring and evaluation; socio economic data and information; technology support; capacity building; education and training; knowledge management; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity; Other
	Thematic areas	Key words
	Ecosystems; Water resources; Human settlements; Human health; Linking local and national adaptation planning	Asia Pacific Adaptation Forum, Nation Adaptation Plans, Policies on adaptation
Description of the activities	Knowledge sharing of good practices on adaptation, and capacity building and promoting good policies on adaptation to the policy makers and multi-stakeholders through the Asia Pacific Advanced Network (APAN) platform.	
Description of the tool or method	Method of adaptation planning that was disseminated through the activity was participatory and inclusive adaptation planning where all stakeholders play a key role, as well as benefit from the knowledge of good practices that are present in the region.	
Timeline	The partnership with APAN has been ongoing. However the time line for different activities will be within the year of 2015. This Includes a regional policy makers workshop on adaptation policies for policy makers of South Asia in February 2015, and then regular contributions on a monthly basis to the knowledge sharing platform of APAN, and contributing to the monthly newsletter on activities done by CANSA members on adaptation.	

Target audience and beneficiaries

Policy makers, civil society organizations.

Outcomes

- Increased knowledge of policy makers on adaptation policies in South Asia, and National Adaptation Plans
- Policy briefs on NAPs, and participatory policy making on adaptation
- Forming and sharing knowledge on adaptation in the region through web based communication and newsletters disseminated.

Implementing partners

- Over 120 civil society organizations that are members of CANSA and contribute to the knowledge sharing aspect of the activities :
<http://cansouthasia.net/members.php>

Further information

During 2015, CANSA has also been involved in setting up of the Asia Pacific Adaptation Forum which is organized in partnership with the Sri Lankan government and APAN. This workshop will take place in October 2016, and is an ongoing activity of this partnership on adaptation. Southern voices adaptation project website: www.southernvoices.net

APAN website: <http://www.asiapacificadapt.net/>

CANSA website: <http://www.cansouthasia.net/>

5. The Greater Mekong Subregion Climate Change Adaptation Roundtable
 Greater Mekong Subregion Core Environment Program (GMS-CEP)

Countries	Adaptation element	Activities
Cambodia; China; Lao People's Democratic Republic; Myanmar; Viet Nam; Thailand	adaptation planning and practices; communication and outreach/awareness; socio economic data and information; capacity building; education and training; knowledge management; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Water resources; Linking local and national adaptation planning	Greater Mekong Subregion, climate change adaptation, roundtable

Description of the activities The Greater Mekong Subregion (GMS) Climate Change Adaptation Roundtable effectively promotes knowledge sharing, dialogue and joint actions on adaptation. Four regional roundtable meetings were held in 2015. Partners discussed analytical tools for assessing basin-scale climate change vulnerability and looked at the processes involved and lessons learnt from application in the GMS. A joint knowledge product on watershed and landscape-scale vulnerability and adaptation assessment guidelines has been drafted and reviewed. The Core Environment Programme (CEP)-supported Roundtable meetings have become a platform for development organizations with active adaptation programs in the GMS to share knowledge, brainstorm approaches, and engage in an ongoing dialogue.

Description of the tool or method Ecosystem Value Estimation (ESV) online estimator tool: which is a tool that allows users to obtain rapid ESV estimates that can give a broader understanding of the potential economic value of ecosystem-based tradeoffs with practical applications and scenarios. This tool calculates value ranges for ecosystems and their services based on 508 assessments conducted in the Lower Mekong Basin.

Multi Criteria Analysis: an effective method for ranking investment alternatives is multi-criteria analysis (MCA), 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 MCA, and the output will be a map showing the geographic distribution of suitability scores.

Agent-based modeling: is a simulation methodology that is typically employed in situations when the behavior of disaggregated system elements can be described but the overall system behavior is unknown. In contrast to most modeling techniques, agent-based modeling allows for 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 behaviors provides the analytical capacity to understand emerging system-wide outcomes.

System dynamics modeling: has a much longer tradition than agent-based modeling as it evolved in particular with the systems thinking throughout the 1970ies and 1980ies. Influential studies such as *The Limits to Growth* (Meadows et al., 1972) are based on system dynamics modeling. In principle, the policy or management issue at hand is translated into a system and disaggregated into interacting system components. The behavior and interaction of system components is defined in mathematical formulae. This methodology was particularly employed to analyze complex interactions between stocks and flows. For the climate adaptation context these interactions are critical to understand bio-physical process, for instance: i) how greenhouse gas emissions accumulate; ii) hydrological flows; iii) deforestation and regrowth dynamics; and iv) material and energy flows.

Bayesian Belief Networks: is a methodology for the development of tools that focus on probabilities or 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. Assumed 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. These BBN-type tools calculate how the risk of, for instance, landslides, salinity intrusion, or inundation might respond to intervention options.

Timeline	<ul style="list-style-type: none"> ▪ The 6th GMS Climate Change Adaptation Roundtable: 28 April 2015 ▪ The 7th GMS Climate Change Adaptation Roundtable: 19 June 2015 ▪ The 8th GMS Climate Change Adaptation Roundtable: 7 August 2015 ▪ The 9th GMS Climate Change Adaptation Roundtable: 2 November 2015
Target audience and beneficiaries	GMS national and subnational governments and practitioners.
Outcomes	Through ongoing dialogue facilitated by the Roundtables, development partners in the GMS deliberated strategy to improve climate resilience of the GMS Regional Investment Framework (RIF) and provided consolidated inputs to the EMM4 Joint Ministerial Statement and the EMM4 knowledge product, as well as a joint knowledge product on Watershed Climate Change Vulnerability and Adaptation Assessments. A regional training on ecosystem service valuation (ESV) was organized jointly by Mekong ARCC and EOC.
Implementing partners	<ul style="list-style-type: none"> ▪ Climate Action Network South Asia : Regional node for Climate Action Network International, regional facilitating partner for Southern Voices on Adaptation Programme, cansouthasia.net ▪ NGO Climate Change Working Group Vietnam : National Partner for coordinating the programme in Vietnam ▪ NGO Forum on Cambodia: National partner for the programme in Cambodia ▪ Cambodia Climate Change Network: Joint national partner for Cambodia ▪ National Steering Committee of CANSAs for Nepal, lead by LiBird Nepal : National partner for Nepal ▪ National Steering Committee of CANSAs for Sri Lanka, lead by Janathakshan: National partner for Sri Lanka ▪ CARE Denmark: The overall programme secretarial support for Southern Voices on Adaptation. ▪ For further information on partners please refer to this website: http://www.southernvoices.net/en/networks.html
Good practice and lessons learned	Regarding adaptation planning:

Good practices in relation to watershed climate change vulnerability and adaptation assessments (W-VAA) have been shared and incorporated in the guidelines.

- Understand the socio-political and ecological context:
- Establish solid understanding of the context of the study area carefully considering cross-sectoral relationships and scale of analysis;
- Examine socio-economic, political, and environmental factors;
- Base understanding on the dependence of the socio-political elements on the ecological systems within the watershed.

Define the scope of the W-VAA including spatial extent, decisions of interest, and key stakeholders:

- Identify stakeholders that include decision-makers and others with influence as well as representative vulnerable groups that are impacted by the issue of concern;
- It is critical that stakeholders who have high influence (ideally at multiple administrative levels) are engaged throughout the process so that they can fully support decisions and other outcomes of the VAA.

Elucidate stakeholder concerns and/or decision-needs

- Engaging stakeholders in a manner that invites collaboration despite potentially differing viewpoints and agendas; it is often useful to focus on a universal issue of concern such as water management;
- Considering the timing of assessment and how that may influence stakeholder perspective;
- Timing is also relevant to successful engagement of key stakeholders;
- Constraining assumptions developed in the primary research phase to ensure accurate characterization of stakeholder perspective;
- Incorporating concepts of uncertainty and variability when discussing potential future impacts of both climate and non-climate.

Core principals of watershed-scale vulnerability and adaptation assessments (W-VAA) describe elements that are common across all W-VAA and that are essential for producing a high quality and useful product.

Principle 1: A W-VAA should focus on informing decisions

Principle 2: The scope of the W-VAA should be strategically determined given

decisions of interest

Principle 3: W-VAAs must embrace complexities of socio-ecological systems

Principle 4: W-VAAs should embrace and communicate future uncertainties and risks

Principle 5: W-VAAs should be participatory

Principle 6: W-VAAs should enable people and institutions to learn and reorganize in the context of risk

Principle 7: W-VAAs should include a plan for monitoring, learning, and evaluation.

**Further
information**

- Further details on ESV are described in this technical document:

http://mekongarcc.net/ESV_tool/ESV.html

- More information on the first roundtable discussion on climate change adaptation in the GMS: <http://www.gms-eoc.org/events/roundtable-discussion-on-climate-change-adaptation-in-the-gms-bangkok->
- GMS-CEP website: <http://www.gms-eoc.org/>

6. Mekong Adaptation and Resilience to Climate Change (Mekong ARCC)
 International Union for Conservation of Nature (IUCN)

Countries	Adaptation element	Activities
Lao People's Democratic Republic	adaptation planning and practices	Other

Thematic areas	Key words
Water resources; Ecosystems	Adaptation, Agriculture, Aquaculture, Awareness, Biodiversity, Climate Change, Decision-Making Tool, Ecosystem, Vulnerability Report, Water

Description of the activities During the IUCN November 2014 field trip, villagers selected four activities as potential climate change adaptation activities for Ban Xong Village.

1. Water storage
2. Village forest conservation
3. Follow-up climate change information

During the November 2014 field trip, villagers selected four activities as potential climate change adaptation priorities for Ban Yang Village.

1. Construction of a water storage tank
2. Follow-up climate change information

During the November 2014 field trip, residents of B. Donekeo selected five activities as potential climate change adaptation priorities.

1. Water storage construction
2. Deep well construction
3. Follow-up climate change information

During the November 2014 fieldtrip, villagers from B. Khounsam, B. Vanghin and B. Khoun selected four activities as potential climate change adaptation priorities:

1. Frog or fish ponds.
2. Village forest conservation
3. Climate and weather monitoring.

Description of the tool or method USAID Mekong ARCC process (community climate story, scientific climate story, shared understanding, adaptation planning)

Timeline May 2015 - A successful field trip to the six villages was undertaken with two water engineers, IUCN and Development Alternatives Inc. (DAI) staff on 14 - 22 May. See Annex 1 for the May 2015 field trip report. The objective of the field trip was:

- To undertake monitoring surveying for the midterm awareness survey and to undertake M&E planning. A total of 63 people have been surveyed for M&E.
- To assess various options and prices for water facility storage and upgrades in the target villages.

May 2015 - The Climate Change Adaptation Plan and associated clearance forms for Ban Khounsam were sent to DAI/USAID for approval. This plan encompasses the construction of catfish and frog ponds for 10 households in B.Khounsam.

June 2015 - A successful field trip to Ban Khounsam was undertaken to implement catfish and frog raising adaptation activities on 22 - 30 June.

July-August 2015 – Led by Dr. Ingrid Sutter, adaptation plans for water construction and rehabilitation within 5 villages (Ban Xong, Ban Yang, Ban Donkeo, Ban Kuan and Ban Vanghin) were prepared and submitted to DAI.

September 9, 2015 – Water construction support meeting was officially opened at Khammouane PAFO to discuss Implementation plan for small scale water infrastructure for four-five villages in Nakai District, defined roles and responsibilities of all partners and plan next steps for monitoring and quality

control.

13-16 October 2015 – IUCN Lao Country Program, along with LCG staff travelled to Nakai to implement water design survey and environmental impact assessment at Ban Xong, Ban Yang, Ban Donkeo, Ban Kuan and Ban Vanghin.

8-21 December 2015 – IUCN Lao Country Program along with LCG and DAI executed water system construction at Ban Xong, Ban Yang and Ban Donkeo of Nakai District, Khamouane Province.

Target audience and beneficiaries In Lao PDR, IUCN Lao PDR has worked with six sub-villages of Nakai district in Phoun Hin National Protected Area in Khammoun Province.

Outcomes

- 1) Adaptation activities implemented according to village adaptation plans;
- 2) Knowledge and lessons learned on climate change adaptation processes shared with partners and neighboring villages.

Implementing partners Lead: IUCN Lao Country Programme; DAI
Partners: Lao Consulting Group; Khammouane Provincial Office for Natural Resources & Environment (PONRE); Khammouane District Office for Natural Resources & Environment (DONRE); Nakai District Authorities; Community Members.

The Mekong Adaptation and Resilience to Climate Change (USAID Mekong ARCC) program in the Lower Mekong Basin (LMB) is supported by the USAID Regional Development Mission for Asia (RDMA). USAID Mekong ARCC aims to increase the adaptation capacity and resilience of rural communities to the negative impacts of climate change. It is a five-year program that focuses on identifying and addressing the environmental, economic and social effects of climate change in the LMB, and on assisting highly exposed and vulnerable rural populations in ecologically sensitive areas to increase their ability to adapt to climate change impacts on water resources, agricultural systems, biodiversity, ecosystems, and livelihood options.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

Planning and implementation of community- and ecosystem-based adaptation activities.

General Challenges:

- Beneficiaries from all levels have demonstrated motivation regarding the project's objectives, however it is not clear if they understand that the project is focused upon CC adaptation, as opposed to “rural development” funded by aid money.
- Because capacity building for an organizational and behavioral change among villagers is a very long-term process (it is a complex subject), we know it will not be easy to achieve the results but we can say that this 1st quarter has paved the way to do so.
- Despite multiple trainings and refreshers, in general CC knowledge amongst local community members has been difficult to take up and retain. The complexities and understanding the differences between weather and temperature compared to climate change has been difficult.
- Although a project log-frame was developed in Q1 for the ARCC, there have been difficulties adhering to output deadlines (poor access to villages most in need, low uptake on CC knowledge building)
- It has been difficult for villagers to understand the differences between CC adaptation and “alternative livelihoods”. When discussing adaptation in light of the potential effects upon raising crops (ex. draught), villagers suggested opening (i) tailor, (ii) salon, and (iii) mechanic shops as adaptation measures.

General Solutions:

- Regular contact with villages
- Regular reinforcement of CC concepts
- Guided CC adaptation activities. For example, if there is draught affecting crops and it will get worse as a result of CC, then communities should consider focusing their efforts upon water security not opening a “beauty salon”. Hence, the focus of efforts with the villagers has been water related.

Further information

- Further information on the project: <http://mekongarcc.net/home>
- IUCN website: <http://www.iucn.org/>

7. Implementation of adaptation activities under the USAID Mekong Adaptation and Resilience to Climate Change (ARCC) project
International Union for Conservation of Nature (IUCN)

Countries	Adaptation element	Activities
Thailand	adaptation planning and practices	Other

Thematic areas	Key words
Water resources; Ecosystems	USAID Mekong ARCC, Thailand, adaptation activities, water management, forest management, livestock, agricultural diversification, climate change adaptation

Description of the activities Implementation of adaptation activities under the USAID Mekong Adaptation and Resilience to Climate Change (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.

- 1) Implementation of adaptation activities that had been identified in the first year of the project (2014) during the adaptation planning process;
- 2) Implementation of activities for sharing and scaling up (expert assessment mission and site visit for neighboring villages).

The following activities were part of the communities’ adaptation plans:

1. Exploring opportunities for agricultural diversification as a strategy for climate change adaptation through exchange visits to a Royal Development Study Center or other agricultural research centers, and implementation of follow-up activities:
 - a. Raising black pigs (mu lum)
 - b. Raising black chickens and layer chickens
 - c. Raising fish and frogs
 - d. Introducing new agricultural crops such as Assam tea, bitter rattan, lemon or rambutan

- e. Growing native rice varieties
- f. Growing vegetables in home gardens, such as the high-value native pak wan species

2. Improving forest management by establishing a community forest management committee, investigating the potential of local flora and fauna in the community forest and arranging community reforestation.

3. Improving community water management by setting up a water management committee and installing household water meters.

4. Improving the quality of community household water supply by installing a water filtration system.

5. Identifying good waste management practices, including organic fertilizer production, through exchange visits and follow-up activities.

Description of the tool or method USAID Mekong ARCC adaptation planning process, linking science and local knowledge (community climate story, scientific climate story, shared understanding, adaptation planning).

Timeline

- 1) Implementation of activities from January to December 2015;
- 2) Expert assessment visits in November 2015;
- 3) Site visit for neighboring villages in December 2015.

Target audience and beneficiaries

Main audience: Four villages in Thailand’s Chiang Rai and Sakon Nakhon Provinces; partners mentioned under 8.

Main beneficiaries: Villagers of the four target villages; neighboring villages.

Outcomes

- 1) Adaptation activities implemented according to village adaptation plans;
- 2) Knowledge and lessons learned on climate change adaptation processes shared with partners and neighboring villages.

Implementing partners

Lead: IUCN Thailand

Partners: District and Sub-District Administrations, Sakon Nakhon Rajabhat

University, Phu Phan Royal Development Study Center, Chiang Rai Land Development Office, Huai Hong Krai Royal Development Study Center, Highland Research and Development Institute (HRDI).

Good practice and lessons learned

Regarding knowledge-sharing and training modalities:

Planning and implementation of community- and ecosystem-based adaptation activities described under section 6.

Lessons learned:

- Introducing diversified crops and livestock increases the resilience of the agricultural system in a number of ways and helps reduce climate-related risks, while providing diversified income and food sources.
- Establishing community regulations and committees (forest management, water management) helps sustain adaptation activities over the long term.
- The availability of very up-to-date USAID Mekong ARCC data (climate projections and impacts on livelihood sectors) was helpful for conducting the vulnerability assessments. However, the local context, experience and perspective is equally important for understanding vulnerabilities.
- Adaptation activities that are directly related to people's livelihoods and that are based on locally available knowledge generally get more support from the community members (e.g. black pigs, native rice), and lessons can easily be shared with communities that have a similar village context.
- Involvement of government agencies and partner organisations is important in order to sustain and scale up adaptation actions.

Further information

- Further information on the project: <http://mekongarcc.net/home>
- IUCN website (Thailand): <http://www.iucn.org/thailand>

8. The Water & Nature Conservation Forum
International Union for Conservation of Nature (IUCN)

Countries	Adaptation element	Activities
	adaptation planning and practices; climate observations; communication and outreach/awareness; capacity building; climate scenarios; impact assessment; knowledge management; science and research; stakeholder involvement; vulnerability assessment	Knowledge product; Meeting workshop; Capacity building activity

Thematic areas

Key words

Water resources; Ecosystems; Linking local
and national adaptation planning

Description of the activities The forum was organized and sponsored by The Regional Knowledge Network on Water (RKNOW) funded by the European Union, the (Nurturing NGO Capacity to Engage in Biodiversity Conservation in the Eastern Mediterranean) Project funded by the MAVA foundation and the International Union for Conservation of Nature, Regional Office for West Asia.

The MAVA funded project aims to assist sustainable management of biodiversity and ecosystems through technically sound and well-structured institutional capacity building of conservation NGOs working in Lebanon, Syria, Jordan and Palestine. The project is coordinated by the IUCN Regional Office for West Asia with the support of the MAVA Foundation.

RKNOW on the other hand, aspires to create a Regional Knowledge Network on Water that will assist in strengthening the application of systematic approaches to water management and water governance. RKNOW has identified four thematic areas which are of high need to the region: Water Governance, Water and Climate Change, Water Energy and Food Nexus and Innovative & Sustainable Water Technologies.

The overall objective of the workshop was to further drive stakeholder engagement, capacities building and knowledge sharing in water management and conservation of nature; with specific Objectives to:

- Identify the key challenge issues in the regional in water and nature conservation

- Identify priorities in the Region and to align a number of initiatives in the region with each other and to create synergies.
- Establish a network among the participants

The expected outcomes were exchanging knowledge concerning water management and nature conservation among participants and mostly assist in outlining the development of RKNOW and IUCN programs' strategies for West Asia.

Description of the tool or method

Tools that used such as, newsletter, case studies, exchange visits, training, mission visits, conferences and workshops, piloting.

A Guiding Toolkit for Increasing Climate Change Resilience was developed throughout the Social, Ecological and Agricultural Resilience in the Face of Climate Change (SEARCH) project and disseminated by RKNOW project (described in point 6).The Toolkit describes the logical and the practical framework of activities based on the involvement of those who are vulnerable to the impacts of climate change on water, which leads toward improved local adaptation, and to the development and implementation of resilience plans for towns, villages, district and governorates. It 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, this Toolkit aspires to support all those involved in the design of measurable, verifiable, and reportable adaptation initiatives by providing step-by-step guidance on the. As such, it seeks to answer the following question: What are the basic steps in planning and designing an adaptation initiative? = VIA PI ME

Case studies, five case studies were prepared in the five countries on climate resilience in watersheds/water districts. Publications (including technical papers and media articles) that summarize the development of climate resilient management/development plans and applicability of different tested methodologies.

A training workshop was held for all partners on climate change vulnerability, impacts, and adaptation.

Exchange visits at national and regional level are carried out mainly for adaptation measures in the face of climate change like drought and flooding.

Pilot projects were implemented to limit the effects of climate change variables like that one in Palestine (Groundwater artificial recharge from flood water).

Timeline	As part of the RKNOW project, May 2015.
Target audience and beneficiaries	The workshop have gathered more than 50 water and nature participants from MENA and DGCC countries in addition to regional and international experts.
Outcomes	<ol style="list-style-type: none"> 1) Adaptation activities implemented according to village adaptation plans; 2) Knowledge and lessons learned on climate change adaptation processes shared with partners and neighboring villages.
Implementing partners	<ul style="list-style-type: none"> ▪ International Union Conservation of Nature (IUCN), Global Water Programme – Switzerland and the Regional Office for West Asia (ROWA) – Jordan ▪ EMWIS Technical Unit (Euro-Mediterranean Information System on the know-how in the Water sector) - France ▪ Centre for Environment and Development for the Arab Region and Europe (CEDARE) – Egypt ▪ Palestinian Hydrology Group for Water and Environmental Resources Development (PHG) - Palestine ▪ University Abdelmalek Essaâdi of Tetouan - Tangier Morocco ▪ Arab Women Organization of Jordan – Jordan ▪ Society for the Protection of Nature in Lebanon - Lebanon.
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>Groundwater artificial recharge by flood water that implemented in Marj Sanour in Palestine considered one of the good climate change adaptation practices. The project was done by drilling two wells for artificial recharge purposes from the flood water that accumulated in the plain area in winter months. The projects aim at limiting the flooded area on one hand and recover the declined water level of the shallow aquifer that mainly used for agricultural purposes. A the national level, exchange visits were carried out of different institution representatives, while the case study of the project were presented in several regional and international events.</p> <p>Much is being done to promote water integrity and anti-corruption measures in the Middle East. Principles indicated that water is a mechanism for peace and positive interactions between nations. Current initiatives in MENA, indicate</p>

that the region faces significant Water Integrity risks at multiple levels. It is therefore thought that improving and prioritizing this issue will help the MENA region reach better water governance goals in the future. Groundwater abstraction has clearly shown to have increased significantly in the region over the last 40 years - mostly at the hands of private corporation which have only benefited a few. There are global frameworks promoting groundwater governance comprising of collective actions to manage groundwater resources. A global diagnostic was developed highlighting inadequate leadership, limited awareness, no measurement of resources, lacking legal systems, insufficient stakeholder engagement. The overall vision and goal is to work more on governing ground water abstraction and that by 2030 groundwater governance in the MENA region can become a reality. Water governance in the MENA region can only be achieved with building awareness, increasing capacity building, reforming governance by better updated policies and developing strategies. It is also important to mention, that nothing can be possible without a bottom up approach, increasing stakeholder engagement and using a participatory approach. It is also of utmost significance, to target women. Mainstreaming gender should be a priority in wanting to increase water governance. Capacity building programs targeting women in local communities have proven to increase governance on the ground in multiple countries.

Regarding knowledge-sharing and training modalities:

Recognize, respect and promote dialogue between different knowledge systems; Promote the integration of traditional, local and scientific knowledge in the management and conservation of natural resources; Promote and facilitate the exchange of know ledge across the world and from site to site and country to country.

The countries in this region are still dominated by highly top-down and poorly coordinated government interventions. Resistance to change is certainly an important factor to be taken into account. The project is ambitious in its aims to work on possible change in strategies and national plans and ultimately policy reform. Although in many countries there are important steps being made for more decentralization and coordination between agencies, these challenges that can pose a constraint to achieving the objectives. The earlier experience has demonstrated that the genuine participatory approaches chosen that build on transparency and dialogue have demonstrated effect. Involving from the very early start of the project senior staff of national government institutions and pursuing such approaches is considered an important in-build avenue to mitigate challenges.

**Further
information**

- All lessons learnt were documented in the proceedings:
<http://www.rknow.net/images/documents/RKNOWforumfinalreport.pdf>
- IUCN website: <http://www.iucn.org/>

9. Training Course/Roving Workshop on Climate-Smart Agriculture and Participatory Methods, Facilitation and Community Engagement Techniques for Climate Smart Villages (CSVs) in Southeast Asia

Climate Change Agriculture and Food Security (CCAFS) – Southeast Asia

Countries	Adaptation element	Activities
Viet Nam; Lao People's Democratic Republic; Cambodia	adaptation planning and practices; capacity building; education and training; stakeholder involvement	Meeting workshop; Capacity building activity

Thematic areas

Linking local and national adaptation planning

Key words

Climate-smart agriculture

Description of the activities The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is focusing on climate change adaptation and mitigation, and its role in food security, especially the synergies and trade-offs amongst these. The Program’s focus is not just on agricultural practices, but in the whole food system – from production to consumption. In terms of adaptation, the Program is interested in the challenges posed by climate variability/extremes and longer-term progressive changes. It is interested not only in incremental changes (e.g. changing practices) but also in transformational options (e.g. switching farming systems).

CCAFS is working with a vast range of partners to test a range of interventions in Climate-Smart Villages (CSV). Starting with 15 CSVs in West Africa, East Africa and South Asia in 2011, 6 additional CSVs were chosen in Southeast Asia. All the villages are in high-risk areas, which will likely suffer most from a changing climate. The CSVs are also locations where partners have already established vital links with local communities.

This roving training/workshop course aimed to capacitate the participating village leaders and researchers/scientists from partner institutions/districts/provinces in Cambodia, Laos, and Vietnam on participatory methods and approaches to ensure community members’ participation, especially the women and other disadvantaged groups, in CCAFS planned activities.

The participatory action research methodology was discussed and field-based experiences (highlighting villagers' active participation) were shared. The participatory methodologies will help CCAFS SEA engage the CSVs in the following: identification of research question to data analysis; partnership building with NGOs, government and other stakeholders; building capacities of villagers to become principal researchers and outsiders as facilitators only; formulation of actions based on project results to benefit the community; and empowering them to control, keep, access and utilize information they have gathered.

Description of the tool or method Relevant tools in facilitating community/farmer participation were presented and discussed. IIRR's field experiences on the use of participatory approaches were also shared to the participants; in the same way, the participants shared their own experiences in conducting participatory researches. The participants were also able to practice the use of participatory methods and tools to collect and analyze data for changing climate trends and those relevant to CSA/CSV R&D.

The participants prepared action plans building on the lessons learned from the course. An action plan would ensure that the learnings will be translated into adaptation action planning to improve their current work programs and projects.

Timeline September 9 - 16, 2015

Target audience and beneficiaries Target audience:

- Village leaders/local leader
- Researchers/scientists from local institution/district/province.

Beneficiaries:

- People in the 6 CSVs in Southeast Asia. Vietnam: Ma village, My Loi village, Tra Hat village (Vietnam), Pailom village and Ekxang village (Laos); Rohal Soung village (Cambodia)
- Local government partners: Officials from agricultural agencies at districts and communes where CSV is located in Vietnam, Laos and Cambodia (Provincial Agriculture and Forestry Office (PAFO); District Agriculture and Forestry Office (DAFO); Department of Agriculture & Rural Development (DARD); Farmers Union
- Local research institutions:

Officials or technical staffs from local research institutions that are working with CCAFS in CSV implementation (Aphivat Strey Organization, IWMI Regional Office for Southeast Asia, Northern Mountainous Agriculture and Forestry Institute (NOMAFSI)).

Outcomes

- With the added skill, knowledge and ideas, the participants could apply these to their work in their respective CSV sites and other areas in their country.
- The workshop allowed for partnerships to be established.
- The improved self-confidence of the participants would pave the way for more confident interactions with fellow villagers, local and international partners and government people.
- The participants' understanding of climate change, CSA, diversification value in climate change adaptation, and community-based research/learning approaches was enhanced through experiential learning.
- The capability of the participants to facilitate on-the-ground CSA practices was improved and they gained insights on viable CSA options.
- The participants were given lots of ideas and technical skills on participatory approaches and methodologies that they can apply in their community.
- The participants prepared and presented their CSVs action plans which integrate the key lessons learned from the lectures and field visits.

Implementing partners

The International Institute of Rural Reconstruction (IIRR - Yen Center, Silang, Cavite, Philippines) is the lead collaborator/partner in this roving workshop.

IIRR has an outstanding track record in conducting projects/activities aimed at strengthening capacities of community groups, development practitioners and organizations using participatory development approaches. IIRR achieves this through field research, training, publications and field programs with poor communities and in partnership with other development organizations. IIRR works directly with learning communities and development partners to build capacities to enable the poor and disadvantaged to effect meaningful change in their own lives. The Institute also works to assist and strengthen the capacities of local partner groups and other international development agencies. Here, IIRR acts as an intermediary development organization whose ultimate impact is achieved indirectly through the individuals and organizations trained or assisted by the Institute.

Role of IIRR in the activity: Before the actual roving training/workshop, IIRR worked with CCAFS Southeast Asia on the design as well as logistical concerns. IIRR core team also met several times to discuss and finalize the

design according to the objectives of the course. As soon as the design was agreed upon, the IIRR Training team visited the communities where the participants will have their field work. Logistical arrangements related to transportation, meals, accommodation, etc. were also made. Handouts and materials were also printed, reproduced and organized for distribution to each of the participants by IIRR.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

1. Bio-intensive gardening (BIG) as climate- and nutrition-smart agriculture: Small areas of land are intensively cultivated, using nature's own ingredient to rebuild and then maintain the soil's productivity. At the heart of the approach is the effort to improve soils' capability to nurture and sustain plant life.

Key principles:

- Nutrient recycling
- Building up of soil's biological base
- Diversified cropping
- Use of indigenous cultivars or locally adapted varieties
- Balanced and integrated ecosystem.

2. Low input & low maintenance agriculture production system

2.1 Low External Input Rice Production

Key principles:

- Increasing soil organic matter with least cost
- Non-burning of rice straw □ proven increased productivity of at least 500 kilos per hectare
- Proper fertilizers application (drain the field) □ lesser requirement, lesser cost
- Green leaf manure & organic fertilizers best alternative to commercial fertilizers
- Post-rice cropping of legumes
- Diversification of crops (mung bean, rice bean, Sesbania aculeata)
- At the same time, rejuvenating soil
- Participatory Varietal Selections: Selecting the best varieties with optimum growth and yield performance
- System of rice intensification (SRI)
 - Good quality seeds
 - nursery raised seedlings
 - 1 – 2 seedlings per hill □ Less seed requirement, lesser cost

- Transplanting of young seedlings (10-15 days)
- 20 – 25 hill interval (allows optimum sunlight)
- Minimal use of water (alternate wet and drying)
- Minimal use of commercial inputs (fertilizers and pesticides).

2.1 Low External Input livestock production

*Goat raising

- Goats are well adapted to drought conditions.
- Improvements in goat production systems
- raised houses (prevents exposure to damp soil)
- intensive feed gardens (on-farm forage production)
- cut-and-carry system of feeding
- establishing small animal cages & pens

*Swine/pig raising

- Native pigs
 - easily adapts to local conditions (very hardy)
 - well adapted to non-commercial feeds
 - require less veterinary inputs compared to hi-breed
 - breeding is important to realize desired size
 - growing market
- “Ti-feeds”: alternative pig feed formulation
 - from “tipid” – cheap
 - commercial feeds only for first 1 to 2 months
 - using locally available resource: rice bran, any leafy edible plant, sugar, salt, coconut juice
 -

2. Community-based research/learning approaches and social involvement and its implications to agricultural development and resilience building.

The field sessions were very informative and very well received.

- The formal and field sessions allowed participants with limited knowledge of CC-CSA related issues to have a better understanding of these issues.
- A good combination of theory and actual practice (mixed indoor and outdoor activities) make for effective learning.

**Further
information**

- CCAFS blog: <https://ccafs.cgiar.org/blog>
- CCAFS website: <https://ccafs.cgiar.org/>

10. Regional Seminar-Workshop on “Reporting climate change, agriculture and food security: Challenges and Opportunities for the Media” in Southeast Asia

Climate Change Agriculture and Food Security (CCAFS) – Southeast Asia

Countries	Adaptation element	Activities
Viet Nam; Lao People's Democratic Republic; Cambodia	communication and outreach/awareness; capacity building; education and training; stakeholder involvement	Meeting workshop; Capacity building activity

Thematic areas	Key words
Linking local and national adaptation planning	Media, climate change, communication, stakeholder engagement

Description of the activities The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) engages in initiatives that aim for better understanding of climate change concepts and issues, and science innovations for mitigating and adapting to climate change. Recognizing the vital role of media in communicating these to farmers and the general public, CCAFS SEA endeavored to enhance the skills of media practitioners in Southeast Asia on environmental reporting through a series of media seminar-workshops.

The media seminar-workshop series aimed at enabling the participants to:

1. Articulate major issues and concerns on climate change, agriculture and food security in Southeast Asia;
2. Exhibit improved capacities on science-based reporting and communicating issues on climate change, agriculture and food security to engage next users, key stakeholders and farming communities;
3. Regularly publish/broadcast/upload stories on climate change, agriculture and food security in the Southeast Asian media.

All in all, four media workshops were conducted in the Philippines, Vietnam, Cambodia and Lao PDR. A total of 149 media practitioners from the print, broadcast and online media, including those from the National Agricultural Research Systems (NARS) and other CGIAR Centers participated in the activities. The content of the two-day media workshops focused on two major areas: science innovations in climate change, agriculture and food security, and communicating climate change.

With the four regional media workshops completed, the next step for CCAFS-SEA would be to move the engagement process further with partners in the region.

Description of the tool or method The content of the two-day seminar-workshops focused on two major areas: science innovations in climate change, agriculture and food security; and communicating climate change. Interspersed with plenary sessions was a story ideas marketplace, which primarily served as a venue for dialogue and interaction among participants and resource persons. A half-day field tour exposed the participants to climate change and agriculture research for development (R4D) either by a CGIAR Center or a NARS partner; and/or climate-smart agriculture (CSA) practices of a farming community.

Timeline

14-15 August 2014	Los Baños, Philippines
17-18 November 2014	Hanoi, Vietnam
29-30 April 2015	Vientienne, Lao PDR
28-29 May 2015	Phnom Penh, Cambodia

Target audience and beneficiaries Target audience:
 The activity involved media practitioners from different media platforms like print, broadcast (TV and radio) and web-based media. Ancillary targets are the participants from NARS and communicators of other CGIAR Centers and other partner institutions.

Beneficiaries:
 Through media, CCAFS SEA hopes to influence decision-makers, policymakers, national and local government officials, change agents, international development organizations, and the general public by providing accurate and science-based information on climate change issues in ways that will be most understandable and interesting. The media is a powerful partner in engaging key stakeholders and mobilizing them to initiate collective action along climate change mitigation and adaptation. Likewise, the media serves as an amplifying voice that can help influence policy-makers, national and local government officials, change agents and international development

organizations towards climate change, agriculture and food security.

Outcomes

1. In-country workshops in the Philippines evolved from the regional workshop. The regional (SEA) workshop paved the way for the forging of partnership and granting of fund with a private institution to replicate the same activity in four strategic regions in the Philippines. Through the initiative of the Philippine Agriculture Journalists (PAJ), the Metro-Pacific Investments Corporation (MPIC) approved the project proposal and provided around USD 35000 funding. MPIC felt the need to properly share the responsibility of writing, publishing and broadcasting more and better stories on climate change, as the situation can no longer be business-as-usual. Using the MPIC funding as leverage, PAJ likewise proposed the project to the Philippines' Department of Agriculture (DA), which also agreed to partner and provide technical and logistic support.

2. The workshop series birthed another important activity, this time involving rural broadcasters across the country. With support from CCAFS SEA, the Philippine Federation of Rural Broadcasters (PFRB) is currently conducting regional workshops among rural broadcasters. Radio remains to be a potent tool in disseminating information particularly in rural communities, hence, the importance of this collaborative activity. The workshop participants are expected to produce information and campaign materials on climate-smart agriculture and eventually, to come up with a concrete workplan on broadcasting these outputs in their respective regions.

3. A concern often raised in the seminar-workshops is the lack of information materials that consolidates climate change concepts and terms, with concise and easy-to-understand definitions and explanations. Thus, the idea of producing a Handbook on Climate Change for Media Practitioners came into being. A work-in-progress, this handbook is being spearheaded by the Philippine Network of Environmental Journalists, Inc. (PNEJ), with support from CCAFS SEA. The handbook is targeted to be released in the current year.

4. In the conduct of the SEA media seminar-workshops, important partnerships were forged with various sectors, offering not only technical assistance but also counterpart funding. In the Philippines, the Redraw the Line, a non-government organization (NGO) that promotes positive social action and behaviour change on issues like climate change, contributed USD 4000 for the activity. In Vietnam, the same NGO provided staff to do the real-time translation of the seminar-workshop proceedings so that the participants can well understand the presentations of the non-English speakers. In Cambodia, the Learning Institute, an NGO that works to alleviate poverty and enhance the well-being of people in rural areas through learning, contributed USD 2000 for the Cambodia leg of the

seminar-workshop. In Lao PDR, a strong partnership was established with the Lao Journalists Association. All these could very well contribute to establishing an enabling environment for continued collaborative activities on disseminating vital information around climate change, agriculture and food security and for future partnerships in organizing knowledge sharing activities.

Implementing partners For all the media workshops, CCAFS SEA did the organizing and coordination work. There are different sets of partners for each leg, contributing to the activity in various capacities.

Philippines. Representatives from the following CGIAR Centers and institutions provided the scientific/technical expertise as resource speakers: International Rice Research Institute (IRRI), WorldFish, World Agroforestry Center (ICRAF), and CIP-UPWARD. Some representatives from Redraw the Line-Media Alliance, Philippine Agriculture Journalists, Inc. (PAJ), Philippine Foundation for Rural Broadcasters (PFRB), and Philippine Science Journalists Association, Inc. (PSciJourn) also served as resource speakers as regard communicating climate change through various media platforms. They likewise sent network representatives to participate in the event.

Vietnam. Local partner: Ministry of Agriculture and Rural Development (MARD) and the Redraw the Line - Vietnam; Technical support: CIAT, CIFOR, ICRAF, ILRI, IRRI and WorldFish

Cambodia. Local partners: Ministry of Agriculture Forestry and Fishery (MAFF) and The Learning Institute; Technical Experts: CIAT, IRRI and WorldFish.

Lao PDR. Local partners: National Agriculture and Forestry Research Institute (NAFRI) and the Lao Journalists Association; Technical support: CIAT, ICRAF, IRRI and IWMI.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

- Importance of collaborating with local partners, private entities and media institutions and networks. Aside from the enhancing the capacity of the media in reporting climate change, agriculture and food security, this

initiative paved the way for stronger inter-Center collaboration and showcased a public-private-CSO partnership in communication and engagement for climate change mitigation and adaptation in the region.

- For journalists. Capitalize on the established connections with researchers in writing articles/producing materials on CCAFS issues. Climate change is not just a gloom and doom scenario: write about the problem and how people are addressing it around the world/in your area
- For CGIAR and other research centers. Have the initiative to start relationships with media practitioners and maintain relationship with media through sending invitations to activities, updates on on-going projects (not just projects that have ended).
- A virtual platform is necessary. The establishment of a virtual platform for continuing dialogue among journalists, CGIAR scientists and next users was deemed important. This will also serve as a repository of background materials, pictures and video clips for stories that can be picked up by the media for further processing.

Below are the feedbacks gathered from the Cambodia and Vietnam workshops, which outlines lessons learned by the participants and partner institutions:

- A climate change story should focus on two things: first, the information should be attractive to the reader. Second, it should help solve the problem like those associated with changes in the seasons, floods, drought and other extreme events.
- The media workshop is very important as a first step in helping people understand CC. Helping journalists understand it enables them to share the right information with the people. Next time, the owners of TV, radio and newspapers and those who make decisions on the news should also participate in such workshops.
- The big media (TV, radio and newspaper) should mainstream stories about what CC is, so that people will understand it better. Likewise, the media should strongly advocate for activities on CC mitigation and adaptation, like stopping people from cutting trees, burning the forest and extracting non-renewable natural resources
- Journalists should regularly publish stories about CC and its adverse effects. Information from the media (including NGOs, private sector and other development partners) usually spread faster than government policy. Hence, there should be strong support for the publication, broadcast and uploading of activities on CC mitigation and adaptation.
- The practitioners had the opportunity to network with other journalists and after this, could then work continuously together. It would be ideal to sustain this initiative in the country.

- The workshop was an informative activity that the Center intends to explore further and build on the model. There should be an emphasis on the context of international media, especially in linking the now and future, as it might not be accurate to say there is a direct link between CC and current scenarios. Communicators need to establish that connection and provide strong scientific backing. They noticed an interest in terms of communication and amplifying the messages. One tip would be to communicate on-going work, instead of communicating initiatives that are already done.
- Research centers would also like to hear from media on issues related to CC. Practitioners may contact them and they will be directed to the researchers. Social media links were provided to them.
- The participants appreciated listening to the presentations of the experts and also in joining the field tour. After the workshop, they expect to have better connection between scientists and media. It was also an opportunity to meet partner organizations.
- The media workshop offered journalists from all over the country a unique chance to discuss and interact with leading scientists in the field of agriculture, food security and climate change in Vietnam. Through participatory facilitation, various ideas for further stories have been initiated focusing on the topics of smart agriculture, climate smart villages, food crops, and climate change and disaster risks management in agriculture. From this workshop, the organization also expects to establish a stronger network between journalists themselves; between journalists and scientists; and between journalists and project officers from partnering institutions.

Further information

- Research stories, CCAFS Southeast Asia: <https://ccafs.cgiar.org/regions/southeast-asia/research-stories>
- CCAFS website: <https://ccafs.cgiar.org/>

11. The Regional Conference on climate change in Central Asia: An opportunity for joint actions towards Paris 2015

The Regional Environmental Centre for Central Asia (CAREC)

Countries	Adaptation element	Activities
Kazakhstan; Kyrgyzstan; Uzbekistan; Tajikistan; Turkmenistan	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; monitoring and evaluation; socio economic data and information; capacity building; climate scenarios; impact assessment; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity; Other
Thematic areas	Key words	
Ecosystems; Water resources; Human health; Human settlements; Linking local and national adaptation planning	Climate Change in Central Asia, regional cooperation, new climate agreement, Paris 2015, low-carbon development, green economy	

Description of the activities The key objective of the conference is to discuss joint opportunities of the national governments of Central Asia on climate change in the times of the New Climate Agreement. The event covered the topics of green economy, national development and climate policies as well as, the countries' efforts towards adaptation, low-carbon development and mitigation at the regional and national levels. The participants also exchanged their experience on capacity building and highlighted the role of civil society and private sector on climate actions in Central Asia.

Description of the tool or method The sessions were structured in a way to capture the first day with the national policies on sustainable development, green economy and climate change as well as address mitigation and adaptation efforts at the national and regional level. The second day was dedicated to capacity building initiatives, the role of civil society and private sectors and their experience in supporting climate actions. On the other hand, the second day intends to formulate key messages of the conference outputs document.

Timeline The Regional Conference on climate change in Central Asia (February 3-4, 2015. Almaty, Kazakhstan).

Target audience and beneficiaries

- Central Asia national government representatives, experts and practitioners, dealing with climate change and cross sector developments;
- Academia, civil society organizations and private sector;
- International experts;
- Representatives of development partners.

Outcomes The participants of the regional conference asked APAN, the Government of Japan and other development partners to consider continuing their support for this dialogue and continuing the discussion on climate change issues during the second half of 2015 prior to COP 21 in Paris December and also recognized that information exchange and raising awareness on climate change prior to the new Global Climate Agreement in Central Asia was a key towards the region's preparedness for Paris 2015.

National policies on climate change underline that all Central Asian States have appropriate policies on climate change in place and are ready to share their experiences both at regional level and globally. They also highlighted that the information included in the NCs, and assembled for the preparation of CDMs, NAMAs, NAPAs, etc. would provide a valuable basis for the information needed in developing the INDCs for Central Asian countries.

Implementing partners Donors:
Asia Pacific Advanced Network (APAN)

Partners:

On the national level: Ministry of Energy of the Republic of Kazakhstan; Greenhouse Gas Inventory JSC "Zhasyl Damu"; Climate Change Coordination Centre; Kazgidromet; PF "Farmer of Kazakhstan"; Institute of Ecology and Sustainable Development; State Agency for Environmental Protection and Forestry under the Government of the Kyrgyz Republic; Centre for Standardization and environmental regulations of Environmental Protection Committee; Regional Mountain Centre for Central Asia.

On the international level: Asian Development Bank (ADB); Institute for Global Environmental Strategies (IGES), World Bank; International Fund for Saving the Aral Sea; Gesellschaft für Internationale Zusammenarbeit (GIZ);

United Nations Economic Commission for Europe (UNECE); Food and Agriculture Organization of the United Nations (FAO).

Good practice and lessons learned

Regarding knowledge-sharing and training modalities:

As it was expected, this conference – helped to expand knowledge and understanding of climate initiatives and policies as well as future plans towards low-carbon development both at the national and regional levels for CA countries.

Further information

- Article about the conference, on CAREC’s website:
http://carececo.org/en/news/the-conference-on-climate-change-in-central-asia/?sphrase_id=238
- Report on Emerging Climate Change Adaptation Issues in the Asia-Pacific Region. By: Brian Harding. June, 2015
http://carececo.org/en/publications/emerging-climate-change-adaptation-issues-in-the-asia-pacific-region/?sphrase_id=238
- Article on COP21 in Paris, CAREC’s website:
http://carececo.org/en/news/cop21-in-paris-climate-change-agreement-is-signed-/?sphrase_id=238
- “Towards Paris 2015: what a new global climate agreement will mean for the countries of Central Asia?” Technical paper. Almaty: August. 2015
http://carececo.org/upload/1/eng_Towards%20Paris%202015_CAREC_August%202015.pdf
- CAREC website: <http://carecprogram.org/>

12. The Report: “Status of climate change adaptation in Central Asia”

The Regional Environmental Centre for Central Asia (CAREC)

Countries	Adaptation element	Activities
Kazakhstan; Kyrgyzstan; Uzbekistan; Tajikistan; Turkmenistan	adaptation planning and practices; climate observations; institutional arrangements; monitoring and evaluation; socio economic data and information; climate scenarios; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity; Other

Thematic areas	Key words
Ecosystems; Water resources; Human health; Linking local and national adaptation planning	Climate change, Central Asia, adaptation, water resources, agriculture, energy, human health, natural ecosystems, forests and biodiversity, natural ecosystems

Description of the activities The report provides a full and detailed overview on the status, priorities, gaps and readiness to mainstream advanced adaptation measures in Central Asia region.

Description of the tool or method The sessions were structured in a way to capture the first day with the national policies on sustainable development, green economy and climate change as well as address mitigation and adaptation efforts at the national and regional level. The second day was dedicated to capacity building initiatives, the role of civil society and private sectors and their experience in supporting climate actions. On the other hand, the second day intends to formulate key messages of the conference outputs document.

Timeline 2015

Target audience and beneficiaries Governmental institutions and NGOs of Central Asia region; other stakeholders.

Outcomes Increased level of awareness raising about impacts of climate change and appropriate adaptive measures in the region.

Implementing partners The report comprises data from the following sources: Government of Kazakhstan, Government of the Kyrgyz Republic, Government of Tajikistan, Government of Turkmenistan, Government of Uzbekistan, UNECE and World Bank (detailed information in reference section of the report).

Good practice and lessons learned **Regarding adaptation planning**

Analysis of the current trends in the CA region and identification of priority sectors: water sector; agricultural development; energy and hydroelectric power; Human health and natural ecosystems.

Based on expert perception, the report assesses the level of readiness of the countries of Central Asia towards enhanced adaptation actions. In overall, it is evident that the region has been fostering its efforts on climate policies, integration of adaptation actions into development plans and programs, capacity building and received quite big investment envelope, aiming at climate adaptation and resilience. At the same time, it is evident that the countries of Central Asia have progressed a lot on prioritizing their socioeconomic sectors, highlighting water, agriculture and energy as top three sectors, which should fit into the national adaptation agenda. However, the biggest challenge for mainstreaming, implementation and institutionalization of climate change in Central Asia is seen in a poor inter-agency coordination and lack of capacity, competencies and skills of the line specialists. Access to climate finance, although successful in getting external resources, has been mostly based on a donor-driven demand and does not envisage a country based mechanism to satisfy the needs of the most vulnerable population. The same applies to emerging but not permanently-based technologies, which could be effectively used and transferred among the countries.

Regarding knowledge-sharing and training modalities:

The report identifies the following gaps and barriers, which hamper the progress of climate change adaptation in CA:

- Policy, strategy and legal frameworks
- Institutional arrangements
- Integration and mainstreaming

- Finance
- Implementation capacity
- Technology
- Decision making and institutionalization
- Awareness, knowledge and access to the information.

**Further
information**

- Reference: CAREC, 2015, “Status of climate change adaptation in Central Asia”.
- CAREC website: <http://carecprogram.org/>

13. Cost Benefit Analysis of Adaptation Options within the Pacific Adaptation to Climate Change (PACC) project

Secretariat of the Pacific Regional Environment Programme (SPREP)

Countries	Adaptation element	Activities
Cook Islands; Fiji; Micronesia (Federated States of); Marshall Islands; Nauru; Niue; Palau; Papua New Guinea; Samoa; Solomon Islands; Tonga; Tuvalu; Vanuatu; Kiribati	adaptation planning and practices; institutional arrangements; monitoring and evaluation; socio economic data and information; capacity building; education and training; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas

Ecosystems; Human settlements; Water resources; Linking local and national adaptation planning

Key words

Description of the activities The Pacific Adaptation of Climate Change (PACC) project is a regional initiative involving 14 countries, and implemented by UNDP in partnership with SPREP. The PACC project includes within its deliverables a specific output on the use of socio-economic assessment tools: Output 1.2 Climate change economic and socioeconomic tools for evaluation of adaptation options developed and utilized. These tools are aiming at supporting both the national or sectoral policy processes to integrate climate change, as well as the community-level implementation of adaptation actions, targeting the water, agriculture and coastal management sectors. The PACC project also involves an outcome on capacity building to support the policy mainstreaming and adaptation implementation processes.

The objective of the economics of PACC sub-project is:

- to increase Pacific Island Country capacity to undertake economic assessments of climate change adaptation both at the pilot project demonstration level and sectoral and national policy levels;
- to complete cost-benefit analyses of the PACC demonstration projects to undertake economic assessment of climate change in each country to help support national adaptation policies and implementation processes, and help countries to mobilize resources and seek additional funding to implement

country-wide adaptation measures.

Description of the tool or method Cost Benefit Analysis toolkit and guideline was developed and disseminated.

Timeline The activity commenced in 2013 and was implemented in countries through to 2015.

Target audience and beneficiaries PACC project coordinators, adaptation practitioners and project developers.

Outcomes In order to achieve the stated objectives, two complementary work streams were carried out. These are (a) targeted in-country capacity development, and (ii) regional technical backstop support.

The rationale for this dual approach was to ensure that certain elements of the PACC project progress in a timely fashion and that sector and national level analyses would likely require discrete efforts from multiple people to do the work properly. The main purpose of the regional backstopping mechanism was to enhance national capacity, building on existing resources and expertise in each country, in a systematic fashion. The regional mechanism attached to the regional PACC framework also ensured the exchange of experience and cross-fertilization between countries and sectoral applications. Each country determined the degree to which they need regional support.

The work program focused on applying an ‘action research and training’ approach, including ‘hands on’ training and mentoring as agreed to during the 2011 Pacific Climate Change Roundtable. The details of a further work program have not yet been developed. This will be done through a technical working group established under the sub-project.

The work program built on the following ideas:

a. In-country capacity development

Regional training sessions were targeted to PACC National Coordinators and core technical teams, sectoral and national development planners and economic experts (e.g. from corresponding line ministries, planning and finance department, national research and education intuitions, as well as private sector).

Each participating country was expected to establish a national technical task team, involving relevant national institutions, and supported by 1-3 national experts with expertise in economics.

The training aimed to

- complete economic analysis of demonstration projects
- conduct economic sectoral analysis (to prepare for PACC+ applications of funds and policy analysis)
- Each country identified 1-3 people from their nation to conduct economic analysis. Individuals ideally had some economics background. Selection and working arrangements for these persons was made on a case by case basis according to the particular circumstances of that country.

b. Regional technical support

Economic expertise from SPREP and other regional organizations such as PIFS and SPC/SOPAC, supplemented the work activities of in-country personnel. The initial stages of the sub-project included some of the ex-ante PACC assessments which are required to be done during the project that could not feasibly be done by in-country personnel. Throughout the sub-project, regional technical support was also provided for a range of discrete activities according to country needs and subject to budget constraints.

Implementing partners United Nations Development Programme (UNDP), Pacific Islands Forum Secretariat and the SPC/GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR) project.

Good practice and lessons learned **Regarding adaptation planning**
CBA is an important tool for assisting decision making in a situation of scarce resources, and also assist with the process of prioritization.

According to participants, this was the first cost-benefit analysis training that had been conducted in/for their countries in recent times. Moreover, participants reported that cost benefit analysis is not widely undertaken by Government officials, though participants/Governments recognised the usefulness of CBA and were keen to increase its application in country (including for assessment of non-climate change adaptation projects).

Minuses

The workshop materials were designed for people with some economics background. However, of the participants had this background. Some explained they simply do not have people with economics skills available to attend/participate in the economics of PACC program. Inter-department politics was also cited as a reason why no economists from some countries participated. As a consequence of this, many participants reported that some of the content was too technical for them

Plusses

The exercises were reported as one of the main strengths/take-away skills learned from the workshop. Many participants were not familiar with the use of excel prior to the workshop which had the effect of slowing down the exercises as well as detracting from the economic analysis elements of the exercises.

The process of developing the CBA workplans helped PACC project co-ordinators to work through the logic of project design (problem, causes of problem, objectives, options, costs, benefits etc) and identify/focus on key uncertainties/risks that may impact on project effectiveness (e.g. inadequate maintenance of rainwater tanks, ineffective regulation of use of water from community tanks, optimal sizing of storage tanks etc). In this way, the process of developing CBA workplans helped co-ordinators identify technical areas that needed further attention.

Also, participants were very receptive to a participatory exercise which sought to demonstrate how people 'discount' future consumption in everyday life.

Regarding knowledge-sharing and training modalities:

It was important to share news stories and results from country workshops and

to disseminate lessons learned and experiences. The toolkit has also been published and disseminated.

**Further
information**

- SPREP website: www.sprep.org

14. A Needs Assessment of Geospatial Data and Technologies in the Lower Mekong Region

SERVIR-Mekong

Countries	Adaptation element	Activities
Cambodia; Lao People's Democratic Republic; Myanmar; Thailand; Viet Nam	climate observations; communication and outreach/awareness; institutional arrangements; socio economic data and information; technology support; capacity building; science and research; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity; Other

Thematic areas	Key words
Ecosystems; Human settlements; Water resources; Human health	Climate change, Central Asia, adaptation, water resources, agriculture, energy, human health, natural ecosystems, forests and biodiversity, natural ecosystems

Description of the activities SERVIR-Mekong, the latest addition to a USAID and NASA-initiated global network of hubs supporting the application of geospatial data and technologies for decision making, carried out a needs assessment in late 2014 and early 2015 to inform the program’s strategic focus as well as provide a resource for other stakeholders seeking to improve the effective application of geospatial data and technologies in the Lower Mekong Region. Data for the assessment were compiled using three methods: stakeholder consultations, an online questionnaire, and a desk review of relevant literature.

Description of the tool or method The tools and datasets currently under development are:

1. A Regional Land Cover Monitoring System that will produce high - quality regional land cover maps and identify land cover changes in the Lower Mekong. This regional system will be used to monitor land use change and eventually will be linked to existing ecosystem service valuations to determine how natural capital is changing throughout the Mekong region.
2. An integrated Regional Drought Information System for drought monitoring, analysis and forecasting for planning and responding to droughts. This system will assist regional, national, and local governments with seasonal drought forecasting, short and long-term mitigation measures during and in advance of

droughts, and for crop yield forecasting

3. A Flood Extent Mapping Tool that will identify 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 will assist end users with flood risk assessments, emergency response planning, and fish habitat assessments, including how these outputs will aid in planning national and subnational adaptation strategies

4. A Water Accounting (+) Decision Support Tool for better water governance and decision making with water allocation and associated trade-offs. This tool will provide operational water budgets at monthly intervals using remote sensing technologies, field-based calibrations and social contexts. It can be used for evaluating adaptation strategies, especially in areas of water scarcity and/or increasing demands.

5. A Virtual Rain and Stream Gauge Information Service that will provide near real-time rainfall and stream flow data from publicly available satellite measurements from a “virtual” network of rain gauges and stream gauges at points widely distributed over the entire Lower Mekong Region. This dataset would be useful for calibrating climate models.

6. A Xe Kong River System Fish Barriers Dataset to assist planners identifying potential barriers to fish movement that may result from modifications to the placement, design and operation of dams on the Xe Kong River. This dataset 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.

7. A Lower Mekong Region River Impoundments Dataset that will provide the extent of inundation resulting from all existing, under construction and planned dams. This dataset 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.

Each tool has an identified end-user in the Lower Mekong countries, generally coming from government departments in the environmental management, disaster management, water resource management, and agriculture sectors. The tools are also awaited by non-governmental organizations whose interventions are in the same sectors.

Both sustaining the use of the tools and converting data into decision-relevant

information require a cadre of scientists and practitioners who are adept in analyzing spatial information and skilled to some degree in the use of GIS and remote sensing software. In order to facilitate the development of a critical mass of people with the relevant skills, each country has at least one university who will partner with SERVIR-Mekong to undertake capacity building to help spread the use of the tool or dataset, as well as perform on-the-ground measurements for calibrating these tools. These University partners are also conducting meetings for scoping the local decision or planning contexts as well as generating the information needs of categories of end-users.

Timeline Launched on August 31, 2015; a new assessment will be made to update the trends in 2017 and 2019.

Target audience and beneficiaries Both target audience and beneficiaries are development stakeholders in the Lower Mekong countries.

Outcomes The results of the assessment are intended to directly feed into capacity building efforts of SERVIR-Mekong as well as other programs seeking to develop geospatial datasets, modeling and decision support software in any of the four themes (and ten GEOSS themes), develop measuring and monitoring systems, as well as develop training curricula and knowledge guides.

From the recommendations (see section 15) to work with decision makers, technical staff, and other stakeholders to fill their needs, SERVIR-Mekong is developing several customized decision-support tools and data sets to fill in the gaps identified by the needs assessment. The tools and datasets are listed in section 13 and several of them are going to address immediate needs for stronger governance structures, improved national planning, as well as evaluating and monitoring various adaptation strategies related to water, food security, ecosystem resilience and disaster management.

Implementing partners Asian Disaster Preparedness Center – implementing hub and lead for the assessment; Spatial Informatics Group – contributed to the stakeholder consultations, assessment and report writing.

Good practice and lessons **Regarding knowledge-sharing and training modalities:**
This activity is underway and will be sharing good practices through a variety

learned

of existing networks that includes local adaptation planning such as USAID's Mekong ARCC and SumerNet.

Recommendations for institutions and projects working to improve the application of geospatial data and technologies for decision making in the LMR (SERVIR-Mekong, 2015: pp. vi-vii):

1. Promote and support the development of a community of practice around the use of geospatial data for decision making.
2. Create web-based resources and support events that bring practitioners together to share experiences and information, coordinate and collaborate on strategies and tools, as well as to build capacity for effectively and efficiently addressing priority needs.
3. Work with decision makers, technical staff, and other stakeholders to develop customized, context-specific decision-support tools that will be used to enhance priority management, planning, and policy development processes.
4. Promote the integration of geospatial considerations across sectors to address issues of contradictory plans, policies and decisions.
5. Develop a guidance note on for GIS developers and application users on how to integrate gender concerns, and point to types and sources of gender-related data that can be used in various GIS tools.
6. Support existing initiatives to clarify, inventory, and harmonize geospatial data resources in all LMR countries, especially in Cambodia, the Lao PDR and Myanmar.
7. Support the further development of a regional network of universities conducting geospatial-related research and capacity building, and support their efforts to more effectively understand and link their work with government agencies.
8. Create and enhance online portals and other data-sharing mechanisms that make it easier for practitioners to access and use satellite-derived data for monitoring and forecasting.
9. Promote international metadata standards and tools that facilitate the efficient authoring and stewardship of metadata.
10. Document the value of open data policies, and showcase examples of how such policies can enhance outcomes and save resources in the region.
11. Work with stakeholders to design, build and maintain decision-support

tools related to the region's top geospatial application priorities.

12. Using similar methods as those used in this assessment, reassess regional geospatial data and technology needs at two- or three-year intervals so that changing priorities can be identified, and effectively and efficiently addressed.

**Further
information**

- Further information on the needs assessment:
<http://servir.adpc.net/knowledge-products/needs-assessment-geospatial-data-and-technologies-lower-mekong-region>
- SERVIR-Mekong website: <http://servir.adpc.net>.

15. Global Exchange Workshop on Adaptation for Food Security and Resilience
 United Nations Development Programme - Capacity Building Programme on the
 Economics of Climate Change Adaptation (ECCA)

Countries	Adaptation element	Activities
Belize; Burkina Faso; Cambodia; Cabo Verde; Haiti; Malawi; Morocco; Mozambique; Niger; Sudan; United Republic of Tanzania	communication and outreach/awareness; capacity building; knowledge management	Meeting workshop; Knowledge product

Thematic areas	Key words
Ecosystems; Water resources; Linking local and national adaptation planning	Climate change, Central Asia, adaptation, water resources, agriculture, energy, human health, natural ecosystems, forests and biodiversity, natural ecosystems

Description of the activities The aim of this workshop was to bring together experts and practitioners from eleven countries across the Africa, Asia and Latin America region to share their experiences and lessons learned on a variety of adaptation-related issues. The workshop was organized around six thematic issues: Climate-related information and services; Innovations in water, soil, energy and crop management technologies and approaches; Strengthening policy and institutions to better integrate agriculture, food security and climate change; Financing measures for resilience; Gender-sensitive approaches; and Measuring impact of adaptation on development outcomes. Every participating country shared at least one innovative experience from their project related to these themes, and participants discussed the various processes, challenges and success factors that would allow others to apply the same approach in their countries. Following from the workshop, selected case studies were developed which documented the innovative approach presented during the workshop.

Description of the tool or method The tools and datasets currently under development are:

1. A Regional Land Cover Monitoring System that will produce high - quality regional land cover maps and identify land cover changes in the Lower Mekong. This regional system will be used to monitor land use change and eventually will be linked to existing ecosystem service valuations to determine how natural capital is changing throughout the Mekong region.
2. An integrated Regional Drought Information System for drought monitoring,

analysis and forecasting for planning and responding to droughts. This system will assist regional, national, and local governments with seasonal drought forecasting, short and long-term mitigation measures during and in advance of droughts, and for crop yield forecasting

3. A Flood Extent Mapping Tool that will identify 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 will assist end users with flood risk assessments, emergency response planning, and fish habitat assessments, including how these outputs will aid in planning national and subnational adaptation strategies

4. A Water Accounting (+) Decision Support Tool for better water governance and decision making with water allocation and associated trade-offs. This tool will provide operational water budgets at monthly intervals using remote sensing technologies, field-based calibrations and social contexts. It can be used for evaluating adaptation strategies, especially in areas of water scarcity and/or increasing demands.

5. A Virtual Rain and Stream Gauge Information Service that will provide near real-time rainfall and stream flow data from publicly available satellite measurements from a “virtual” network of rain gauges and stream gauges at points widely distributed over the entire Lower Mekong Region. This dataset would be useful for calibrating climate models.

6. A Xe Kong River System Fish Barriers Dataset to assist planners identifying potential barriers to fish movement that may result from modifications to the placement, design and operation of dams on the Xe Kong River. This dataset 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.

7. A Lower Mekong Region River Impoundments Dataset that will provide the extent of inundation resulting from all existing, under construction and planned dams. This dataset 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.

Each tool has an identified end-user in the Lower Mekong countries, generally coming from government departments in the environmental management, disaster management, water resource management, and agriculture sectors. The

tools are also awaited by non-governmental organizations whose interventions are in the same sectors.

Both sustaining the use of the tools and converting data into decision-relevant information require a cadre of scientists and practitioners who are adept in analyzing spatial information and skilled to some degree in the use of GIS and remote sensing software. In order to facilitate the development of a critical mass of people with the relevant skills, each country has at least one university who will partner with SERVIR-Mekong to undertake capacity building to help spread the use of the tool or dataset, as well as perform on-the-ground measurements for calibrating these tools. These University partners are also conducting meetings for scoping the local decision or planning contexts as well as generating the information needs of categories of end-users.

Timeline	Workshop was held from 2-5 March, 2015
Target audience and beneficiaries	Practitioners, policy and decision-makers in participating countries. Knowledge products emerging from the workshop targeted practitioners outside of the workshop, as well as other partners and donors.
Outcomes	<ul style="list-style-type: none">▪ Establish a cohesive community of practice among the national projects by providing an opportunity for the national teams to meet and get to know each other for future sharing/learning▪ Support project teams to share insights about their experience with the projects, both successes and challenges, which may be useful for other teams▪ Document concrete lessons learned, results and successes for defined knowledge products.
Implementing partners	Co-organizers: Canada-UNDP Climate Change Adaptation Facility; Africa Climate Adaptation and Food Security project; Conseil National de L'Environnement pour un Developpement Durable, Niger. Funders: Government of Canada; Government of Japan, Global Environment Facility
Good practice and lessons	Regarding adaptation planning: Specific experiences related to adaptation planning (at national and local level)

learned

were shared from the following countries, with a short summary below:

- Burkina Faso: National adaptation plan (NAP) - Kouka Ouedraogo, TICAD V projects Coordinator, CONEDD, Burkina Faso

The Burkina Faso National Adaptation Plan, or NAP, is a medium and long term plan drawing on progress made under the NAPA projects implemented from 2009 to 2013. It encompasses seven sectors considered as the most vulnerable to climate change. It was developed by a multidisciplinary team composed of sectoral experts, assisted by two members of the civil society, under the coordination of a senior consultant. The NAP was validated on February 17, 2014, and will soon be sent to the Ministerial Council. Then, a campaign to generate ownership will target other stakeholders. Mobilizing political, technical and financial support will be essential for the implementation of the NAP, estimated at \$8 billion USD.

- Malawi: National climate investment plan – Sothini Nyirenda, UNDP Malawi

The National climate investment plan (NCIP) seeks to guide climate change investments in Malawi. The NCIP was developed to ensure that key priority areas are sufficiently supported with resources, are well-coordinated and timely. It provides a framework for monitoring, reporting and accounting for the resources allocated to the sectors for climate change, by providing strategic priorities and targets. The four thematic areas of the NCIP are: adaptation; mitigation; research, technology development and transfer; and capacity development. The adaptation area focuses on integrated watershed management, improving climate change community resilience through agricultural production, climate change proofing for infrastructure development, and enhancing disaster risks management. The total cost of the NCIP is \$954.5 million US for six years, of which adaptation interventions represent 48.20%. The NCIP was successfully launched in April 2014 and provides an entry point to all the stakeholders interested in investing in climate change activities in Malawi.

- Haiti: GIS-based environmental management plan to inform resilience-focused investments across sectors – Jean Ked Neptune, Ministry of Environment of South Department, Haiti

“Plan de co-gestion” is a land use management plan that seeks to combine resources from different watershed actors to improve the socio-economic

conditions of the population in the short and medium terms. It is built on a GIS map which provides decision makers with reliable data for informed decisions. The maps illustrate different land use types with respect to their potential proposing areas for intensified agriculture, agro-forestry, ecological restoration, natural regeneration, coastal zones, conservation and urban expansion. It also shows that 85% of the area of the South department is in “conflict” between different uses, which are important to regulate in order to facilitate adaptation. To produce this map, an inventory was carried out of all existing information within the department, along with biophysical and socioeconomic studies. This information was then overlaid with other GIS data to illustrate land use. The challenges faced are the high cost of GIS software and related materials.

- Morocco: Regional adaptation planning - Amal Nadim, UNDP Morocco

The Climate Change Policy of Morocco (PCCM) is structured around strategic sectoral issues, which includes adaptation interventions in the areas of water, agriculture, fisheries, and biodiversity conservation. Four integrated adaptation pilot projects have been implemented under this policy, one each in the sector of agriculture, energy, flood risks management and conservation of water resources. Some activities carried out under the ACA project are: the integration of adaptation in municipal planning; the mobilization of actors and institutions concerned; and the creation of oases networks.

- Tanzania: National to local level planning and budgeting – Stephen Mariki, Vice President's Office Tanzania

With support from the ACA project, Tanzania is further integrating climate change into its national and sub-national planning and budgeting processes. The approach taken to achieve this aim was to raise awareness and to engage key decision makers responsible for setting priorities for investment, especially the Minister of Finance and Planning, the Prime Minister’s Office, and the President’s Office. The project also developed knowledge products (e.g. climate information toolkit for farmers) to help understand climate change at the local level. It also identified entry points and built the capacity of local and sub-national authorities to mainstream climate change into planning and budgeting processes. The challenges faced include an absence of a clear guideline to allocate resources for climate change, lack of resources to mainstream climate change, especially at the local level, and limited capacity in climate change of most of the personnel of the ministries and local government authorities. To address some of these challenges the project worked with the Ministry of Finance to develop guidelines specifying how climate change

should be incorporated in national and local budget priorities.

- Mozambique: Local adaptation planning – Lolita Hilario, UNDP Mozambique

The ACA project supported the process of elaborating local adaptation plans, which involves four elements: (1) climate vulnerability assessment and capacity building of the communities to deal with climate change; (2) integration of climate change into the local development plan and different sectors; (3) development of the implementation strategy; and 4) reporting, monitoring and review. Challenges to implement this plan include a lack of capacity at the local level, as the local adaptation plan should be developed by the local communities. This issue is addressed by building the capacity of the local community to use the methodological guideline. There is also limited participation of women in the process, and a challenge in selection of districts to develop local adaptation plan as in Mozambique there are 182 districts. Finally, climate adaptation is not a priority for allocation of funding by the Ministry of Finance. The next step is to move towards one integrated local development plan that fully integrates climate change priorities instead of having multiple, separate climate adaptation and sectoral plans.

- Niger: Integrating climate change into local development plan – Idrissa Mamoudou, Technical Advisor, CNEDD

Niger has elaborated national and municipal guidelines, yet even after revision has failed to incorporate climate change. An annex to the guidelines incorporating climate change was later developed. The guidelines enumerates seven phases for the elaboration of a municipal plan: (1) preparatory phase - the service provider and the municipality discuss means and tools to be used to collect data; (2) diagnostic analysis - indicates how to value climate information in municipal planning; (3) formulation phase - the municipality shares its vision for the next 10-15 years; (4) development of strategic orientations; (5) adoption of the plan; (6) evaluation of compliance; (7) dissemination and evaluation of the plan after five years. To ensure that climate change becomes a reality within this process, CNEDD under the NAPA/CCAF project further strengthened capacity of technical services at the local level.

Some selected lessons learned from the various experiences:

- In Burkina Faso,
 - the effectiveness of a sector wide approach for the formulation of a long

term adaptation strategy stemmed from the establishment of a participatory mechanism, which includes actors from the public and private sectors and the civil society. This participatory approach helped not only to forge ownership, but also put climate change in the national political agenda beyond the technical level.

- In Haiti, the following lessons learned were documented:
 - The relevance of the data to be collected: The data to be collected must be selected by taking into account the sectoral mandates of different departmental directorates. The DDS/MoE team has made great efforts in collecting data, some of which were not a priority nor were needed by the departmental directorates. Thus, the efficiency (both time and resources) in the data collection could be improved if the questionnaires produced were in line with the topics of intervention of the various departmental directorates (Agriculture, Planning, Tourism, Education, Health, etc.).
 - Prioritization of data according to its obsolescence: The collection of data was made in a single data collection campaign. Thus, the DDS/MoE collected data that two years later were already obsolete due to changes /developments observed in the target areas. For future data collection campaigns, data to be collected should be prioritized according to their immediate use by the various departmental directorates.
 - Updating of data: It is important to set up a system for updating collected data either through watershed management committees or departmental directorates concerned.
 - Stakeholder involvement: it is extremely important to involve all actors of the watershed – e.g city hall, departmental directorates, community-based organizations (CBOs), etc. right from the beginning of the intervention. If this occurs, the validation of the maps and implementation of the joint management plans produced will be easier in the future.
 - Land cover map: It is not possible to analyse changes in land use from the data collected from aerial photos. Hence, it is better to have aerial photos over several periods in order to obtain a picture of a five to ten-year period of land use in the past, to arrive at the current use

- In Tanzania, the following lessons were documented:
 - Reduced conflicts and environmental degradation through support on adaptation interventions i.e water resources management which reduced livestock keepers/farmers conflicts resulting from water resources use;

- Increasing ownership of CC interventions from communities where they were involved in the planning process using the Opportunities and Obstacles to Development tool;
- Effective community engagement results in development of own institutions for resources management such as Water User Committees/Associations that has shown to have a positive impact on project sustainability with communities' contributions for operational costs.

Regarding knowledge-sharing and training modalities:

After experience with several other modalities of sharing experiences (e.g. email listserves, websites, social media), it is clear that in-person workshop is the most effective. Participants had the opportunity to have discussions around relevant themes, and also create relationships with other project teams that is difficult to do using only email. These relationships lasted beyond the workshop, where several project countries interacted directly to share experience. It was clearly worth the investment in bringing together participants.

With regards to the information sharing that occurred during the workshop, having participants speak themselves and lead discussions themselves was also beneficial, and allowed them to focus on issues that were common across countries.

It is important that the presenters are clear on the structure of the discussions and the information they are expected to present. Providing a templates for the ppt is one way to ensure the presentations are focused.

Small group discussions and open plenaries, as well as “social” time for participants to talk with eachother, allow participants to go beyond the information presented, and ask the specific questions that will help them learn and apply new knowledge to their context.

Further information

- More information on the event, available here: <http://undp-alm.org/projects/ccaf/meetings-and-workshops>
- Case studies developed based on the workshop discussions, available here (under case studies):

<http://undp-alm.org/projects/ccaf/reports-and-publications>

- UNDP website: <http://www.undp.org/fr/>.

16. Activity: Information exchange / report formulation in preparation for the Fourth Regional Training Workshop

United Nations Development Programme – Africa Regional Center

Countries	Adaptation element	Activities
Bangladesh; Cambodia; Indonesia; Lao People's Democratic Republic; Maldives; Mongolia; Nepal; Sri Lanka; Thailand; Viet Nam	adaptation planning and practices; capacity building	Other

Thematic areas	Key words
Linking local and national adaptation planning	

Description of the activities The Fourth Regional Training Workshop, while scheduled initially for 2015, will now be held in October 2016 as part of the APAN Forum. The associated activities however linking to the workshop were underway during 2015.

This workshop is a part of the broader ECCA programme.

The Capacity Building Programme on the Economics of Climate Change Adaptation (ECCA) in Asia is a cooperative effort between UNDP, the USAID ADAPT Asia-Pacific Project, the Asian Development Bank (ADB), the Global Water Partnership (GWP) and Yale University.

(The Third Regional Training Workshop for ECCA was held in Siem Reap, Cambodia, from the 17 September to the 20 September 2014).

Background

The Capacity Building Programme on the Economics of Climate Change Adaptation (ECCA) in Asia addresses a consensus reached during a 2012 Regional Consultation that a more comprehensive approach to mainstreaming climate change risks into planning processes was needed to ensure economically-efficient climate change strategies at the sectoral, sub-national

and national levels.

The ECCA programme is thus comprised of a series of trainings on microeconomic tools for assessing the costs and benefits of adaptation. Trainings are interspersed with in-country work with the mentor support of an economics expert from a local university. The programme targets technical staff in the public sector, specifically those who are or will be involved in sector or project analysis in central agencies including Planning, Finance, Environment and/or line Ministries. Many of the targeted staff are also expected to play key roles in mainstreaming climate into development planning, as Least Developing Countries are shortly expected to do through their respective National Adaptation Plan (NAP) process.

The 1st and 2nd regional workshops provided training on theory and the practical application of cost-benefit analysis, and introduced participants to forecasting and modeling. The 3rd and 4th trainings move from project level analysis to sectoral analysis, and look into country-specific institutional development plans, within the context of ongoing and new initiatives. These analyses will be further presented to policy makers, and can support decision-making related to the assessment of alternative adaptation options. Each workshop is a building block guiding participants through principles and application techniques of economic analysis. These trainings and experience-sharing workshops are interspersed with fieldwork and application. Additional support is provided to the country teams through Live Chats and Webinars-virtual classroom settings where participants discuss issues with the lead mentors as well as each other.

Ultimately, the programme sought to institutionalize these important analytical skills into ministries and departments, enabling countries to formulate economically efficient and climate resilient development plans, including National Adaptation Plans (NAPs) - a process established under the Cancun Adaptation Framework (CAF) to help countries identify their medium- and long-term adaptation needs. These trainings will be shaped into a post-graduate training course, available at universities and institutions in Asia region for continued learning.

Description of the activity:

- Regional training (Bangkok) in June 2015 on economic analysis
- Completion of data collection through agriculture/water use household surveys

- In-country training on economic analysis of that data
- Continued remote support to further develop analysis products
- Analysis products are expected to be complete by mid-2016, for final presentation to policy makers in Q4, 2016

To contribute to the overall ECCA programme, enabling:

- Training of government officers to estimate the economic costs and benefits of proposed climate change adaptation projects, as well as to identify adaptation options in the agriculture and water sectors.
- Support the design and appraisal of investment projects for adaptation that can be financed from current and emerging sources of domestic and international climate finance.
- Convene policy dialogue forums with Ministries of Planning/Finance and line Ministries at the country and regional level to discuss the economics of adaptation in the context of national and sub-national medium and long-term national development plans and investment projects.
- Develop and nurture a virtual community of practice of technical officers working on the economics of adaptation in Asia.
- Country Teams (comprised of technical officers from relevant Government Ministries, academia and others) conduct assessments on the costs and benefits of climate change adaptation options (this work will be linked to ongoing adaptation projects financed by the Least Developed Country Fund, Special Climate Change Fund and/or Adaptation Fund).
- Investment projects for adaptation that can be financed from current and emerging sources of funds such as the Green Climate Fund will be assessed in terms of their economic costs and benefits
- Establishment of the training programme within a suitable learning center in the country or region that can provide continuous technical advisory support to countries on the assessing the economic costs/benefits of adaptation.

Timeline

Timeline:

The Fourth Regional Training Workshop, while scheduled initially for 2015, will now be held in October 2016 as apart of the APAN Forum. The associated activities however linking to the workshop were underway during 2015.

Next steps:

The results from the final workshop and the reports are expected to be used by policy makers in the context of their national adaptation planning process as

well as feed into the updates of INDCs that countries are preparing as part of their obligations under the 2015 Paris Agreement. Estimates of damage projections will feed into the disaster and loss database that UNDP is helping to establish. The results of economic assessments of climate change impacts and adaptation will also feature in a south-south dialogue between policy makers at a regional forum that will be organized by UNDP and UNEP in October 2016 (APAN Forum in Sri Lanka).

Target audience and beneficiaries	The programme targets technical staff in the public sector, specifically those who are or will be involved in sector or project analysis in central agencies including Planning, Finance, Environment and/or line Ministries.
Outcomes	Expected results and outcomes of the activities: <ul style="list-style-type: none">▪ Completed country reports, regional reports, policy briefs for presentation at the Fourth Regional Training Workshop in October 2016.
Implementing partners	This program is implemented through collaboration among USAID's ADAPT Asia-Pacific Project, UNDP's Energy and Environment Group, Yale University's School of Forestry and Environmental Studies, and the Asian Development Bank.
Good practice and lessons learned	Regarding adaptation planning and knowledge-sharing and training modalities : Country Reports for all countries; a Regional Report and Policy Briefs are currently underway.
Further information	<ul style="list-style-type: none">▪ More information on the project: http://www.undp-alm.org/projects/ecca-asia▪ UNDP website: http://www.undp.org/fr/

17. Vulnerability and Impacts Assessment for Adaptation Planning in Panchase Mountain Ecological Region (PMER), Nepal

United Nations Environment Programme Regional Office for Asia and the Pacific (ROAP)

Countries	Adaptation element	Activities
Nepal	climate scenarios; impact assessment; science and research; stakeholder involvement; vulnerability assessment	Knowledge product

Thematic areas	Key words
Ecosystems	Ecosystem Based Adaptation (EbA), Climate Change, Nepal, Mountain EbA

Description of the activities UNEP under Mountain Ecosystem Based Adaptation Project has developed and applied methodology and tools for assessing vulnerability and impacts of the Panchase Mountain Ecological Region (PMER), which is one of three global pilot sites for the three-country. The project is jointly implemented by the Government of Nepal (GoN), the United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) and International Union for Conservation of Nature (IUCN). It aims to support climate vulnerable communities for adapting to climate change in Mountain Ecosystem through strengthening ecosystem resilience, enhancing adaptive capacity of communities, and building capacity of local institutions. The project is financially supported by the Federal Ministry for the Environment, Nature Conservation Building and Nuclear Safety (BMUB) of the German Government.

This assessment report describes the tools and methods applied for VIA, and presents findings of a vulnerability and impacts assessment (VIA) of both climatic and non-climatic changes on ecosystem services and community livelihoods in the PMER. Expected temperature rises and unpredictable changes in the nature of precipitation are among the key findings that could alter the behaviour of local ecosystems, affecting their ability to provide basic food, water, energy and livelihood services, and threatening the survival of some species. It identifies and recommends ways to implement EbA options to reduce ecosystem vulnerability to climate change and enhance resilience of vulnerable communities at the ward and sub-watershed levels. Several EbA

options identified in the report are already being implemented and integrated at local level development planning processes.

Description of the tool or method	EbA focused VIA (VULNERABILITY AND IMPACT ASSESSMENT) methodology and tools has been applied for assessing vulnerability which has also been shared with a) EbA Nepal partners (UNDP and IUCN), b) relevant ministries and agencies at national level, c) district line agencies in Panchase, District Development Committee (DDC), and Village Development Committee (VDCs). VIA findings have been shared with communities focusing on wards and sub-watersheds. Findings have also been shared with EbA Project Team at Global Level.
Timeline	Development of EbA VIA methodology and tools commenced in 2013 and methodology and tools have been applied for collecting data and information during 2013 and 2014 including analysis and presenting draft findings among key stakeholders. Final report has been published in December 2015. VIA findings are being used for designing EbA focused adaptation plan at 13 sub-watershed levels of which 3 have been delivered in 2015 and remaining 10 will be delivered in 2016.
Target audience and beneficiaries	Panchase District Development Committee (DDC), Village Development Committee (VDC), government line agencies working at district level, ministries, and technical departments working at national level, academic and research institutes, project partners.
Outcomes	Enhance understanding on vulnerability and impacts of the Panchase region, support scientific assessment based adaptation planning focusing on Ecosystem based Adaptation.
Implementing partners	Lead: UNEP Technical collaborating partner: ISET-Nepal Project collaborating partners: UNDP and IUCN
Good practice and lessons	Regarding adaptation planning VIA analysis has been carried out both by ward and sub-watershed levels. It has

learned

allowed to present and connect VIA findings with key actors dealing with local and VDC level development and how it connected with immediate sub-watershed and larger watershed.

Local community, District Development Committee (DDC), and Village Development Committee (VDC) level actors understand ecosystem services better as it connects them immediately with livelihood of local community and resources they are depended on. Engagement of wider stakeholders including local communities, VDCs and district level line agencies and several iterations (shared learning dialogue) were key success factor to assess vulnerability and impacts.

Regarding knowledge-sharing and training modalities :

Technical partner utilize shared learning dialogue as a methodology to present findings and refining finding through incorporating inputs from communities and other actors.

Ecosystem based Adaptation to climate change is an emerging concept and therefore not easy to communicate what exactly it entails. How it is different from normal ecosystem management and conservation, expanding EbA to climate change in a simpler way and using local language.

Further information

- UNEP ROAP website: <http://web.unep.org/regions/roap>

18. Ecosystem Based Climate Adaptation Planning at Sub-watershed Level of Panchase Mountain Ecological Region

United Nations Environment Programme Regional Office for Asia and the Pacific (ROAP)

Countries	Adaptation element	Activities
Nepal	adaptation planning and practices; communication and outreach/awareness; socio economic data and information; stakeholder involvement	Knowledge product

Thematic areas	Key words
Ecosystems	Adaptation Planning, Ecosystem Based Adaptation (EbA) Planning, Climate Change, Nepal, Mountain EbA

Description of the activities The Ecosystem based Adaptation Nepal (EbA-N) for mountain ecosystem is being implemented in Panchase area, belonging to Kaski, Parbat and Syangja districts, due to its vulnerability to climate change particularly adverse impacts on water resources, agriculture and biodiversity. UNEP has assessed vulnerability and impacts focusing on ecosystem and ecosystem services of the Panchase Mountain Ecological Region (PMER). Based on VIA results presented at wards and sub-watershed levels, UNEP has developed and applied tools and methodology to develop Ecosystem based Climate Adaptation Plans at sub-watershed level for Panchase Mountain Ecological Region. In 2015, it has developed EbA focused 3 sub-watershed levels adaptation plan and remaining 10 sub-watershed level adaptation plan will be finalized in 2016.

Sub-watershed level EbA plans include vulnerability of each sub-watershed, presents critical systems (ecological and social) and resilience options including ecosystem based adaptation for each sub-watershed. It also presents climate scenario for 2030 and local development scenario in the socio-economic context. The report identifies agents/organizations to implement adaptation options both EbA and non-EbA at sub-watershed level.

Description of the tool or Tools and methodology developed and applied for developing Ecosystem Based Climate Adaptation Planning at Sub-watershed Level of Panchase

method	Mountain Ecological Region have been shared with a) EbA Nepal partners (UNDP and IUCN), b) relevant ministries and agencies at national level, c) district line agencies in Panchase and Village Development Committee (VDCs). Findings have been shared with communities focusing on wards and sub-watersheds. Findings have also been shared with EbA Project Team at Global Level.
Timeline	Development of Ecosystem based Adaptation Plans begun in 2014 and 3 sub-watershed levels climate adaptation plans have been delivered in 2015 and remaining 10 will be delivered in 2016.
Target audience and beneficiaries	District Development Committee (DDC), Village Development Committee (VDC), Government line agencies working at district level, Ministries, and technical departments working at national level, academic and research institutes, project partners.
Outcomes	Enhance understanding on vulnerability and impacts of the Panchase region, support in scientific assessment based adaptation planning focusing on Ecosystem based Adaptation.
Implementing partners	Lead: UNEP Technical collaborating partner: ISET-Nepal Project collaborating partners: UNDP and IUCN
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>EbA adaptation planning exercise has been carried out at sub-watershed levels utilizing initially identified EbA and non-EbA options during VIA. It has allowed presenting and connecting proposed EbA options with key actors dealing with local communities, VDC level development entities and how it connected with immediate sub-watershed and larger watershed and benefits to deliver.</p> <p>Local communities, DDC and VDC level actors understand ecosystem services better and adaptation options to climate change as well as how those will support livelihood of local community. Engagement of wider stakeholders including local communities, VDCs and district level line agencies and several</p>

iterations (shared learning dialogue) were key success factor for successfully identify EbA options and key actors/agents for implementation.

Regarding knowledge-sharing and training modalities :

Technical partner utilize shared learning dialogue as a methodology to present findings and refining finding through incorporating inputs from communities and other actors.

Ecosystem based Adaptation to climate change is an emerging concept and therefore not easy to communicate what exactly it entails. How it is different from normal ecosystem management and conservation, expanding EbA to climate change in a simpler way and using local language. Integration of EbA options during VDC and DDC level planning requires capacity development of staff working in planning unit and supporting planning processes.

**Further
information**

- UNEP ROAP website: <http://web.unep.org/regions/roap>

19. Comprehensive Capacity Development towards Integrating EbA in National and Local Level Planning System in Nepal

United Nations Environment Programme Regional Office for Asia and the Pacific (ROAP)

Countries	Adaptation element	Activities
Nepal	adaptation planning and practices; monitoring and evaluation; capacity building; education and training	Capacity building activity

Thematic areas	Key words
Ecosystems; Linking local and national adaptation planning; Water resources	EbA Capacity Building, EbA Training, Ecosystem Based Adaptation (EbA), Climate Change, Nepal, Mountain EbA

Description of the activities

a. Developed EbA Training Manual in English and Nepali Language and Organize Training of Trainers (TOT) for 10 government officials from five national and regional government training institutions;

b. Organized a five-day long training for 30 government officials (planning) of district line ministries and protection forest management programme;

c. Three-day long training for 25 DDC members and office staff in Panchase focusing on integration of EbA, and a three-day long training for 30 VDC secretary and technical support staff focusing on VDC planning formation will be organized in 2016.

Description of the tool or method

Conducting Training of Trainers (ToT) and Training for DDC, VDC and planning staff of line ministries where VIA tools and methodology, adaptation planning tools and approaches including shared learning dialogue, monitoring and evaluation tools have been presented. Training manual developed both in English and in Nepali Language have been used for delivering training.

Timeline

Development of training manual commenced in 2014 and training manual both in English and Nepali language has been delivered in 2015. A two-day long Training of Trainers (TOT) for 10 government officials from five national and regional training institutions, and a five-day long training for 30 government officials (planning) of district line ministries and protection forest management

programme have been organized in 2015.

Target audience and beneficiaries Panchase District Development Committee (DDC), Village Development Committee (VDC), government line agencies working at district level, ministries and technical departments working at national level, government training institute at national and regional levels.

Outcomes Enhance understanding on vulnerability and impacts of the Panchase region, support scientific assessment based adaptation planning focusing on Ecosystem based Adaptation, and integrating EbA in planning and budgeting system both at DDC, VDC and sectoral planning system.

Implementing partners Lead: UNEP ROAP
Technical collaborating partners: ISET-Nepal, and Tribhuvan University Central Department of Environmental Science (TU-CDES), Nepal
Project collaborating partners: UNDP and IUCN

Good practice and lessons learned **Regarding adaptation planning**
Active engagement of participants, using training manual in local language, connecting with livelihood and long-term development aspects have been shared during training. It has also utilized actual local level planning cycle for local development has been discussed for finding possible entry points for integration.

Participants from National and Regional Training Institutes, District Development Committee (DDC), and Village Development Committee (VDC) level actors understand ecosystem services better as it connects them immediately with livelihood of local community and resources they are depended on. Time commitment of participants for ToT, DDC, VDCs and district level line agencies were key success factor for enhancing their capacity through training workshop.

Regarding knowledge-sharing and training modalities :

Technical partner utilized several training methods including classroom lecture,

hands on exercise and field level actual implementation of tools and methods with vulnerable communities.

Ecosystem based Adaptation to climate change is an emerging concept and therefore not easy to communicate what exactly it entails. How it is different from normal ecosystem management and conservation, expanding EbA to climate change in a simpler way and using local language, why integration is important for long-term benefits while community requires immediate action for their development.

**Further
information**

- UNEP ROAP website: <http://web.unep.org/regions/roap>

20. Global Environment Facility/Least Developed Countries Fund Project Development
 Workshop on urban ecosystem-based adaptation in Asia-Pacific
 United Nations Environment Programme Regional Office for Asia and the Pacific
 (ROAP)

Countries	Adaptation element	Activities
Bhutan; Cambodia; Myanmar; Lao People's Democratic Republic	adaptation planning and practices; capacity building; education and training; stakeholder involvement	Meeting workshop

Thematic areas	Key words
Human settlements; Ecosystems; Water resources	Adaptation, EbA, Bhutan, Cambodia, Lao PDR, Myanmar, LDCF, GEF

Description of the activities UNEP is currently working with relevant stakeholders – including government representatives – from Bhutan, Cambodia, Lao PDR and Myanmar to develop a full Global Environment Facility (GEF)/ Least Developed Countries Fund (LDCF) project focusing on Urban Ecosystem Based Adaptation to Climate Change. To develop the proposal, an international team from UNEP is working with national consultants in each country to collect and present relevant information during the Project Preparation Grant (PPG) phase. As part of the PPG phase, a regional workshop was held on the 8 and 9 October 2015 in Bangkok, Thailand. The objectives of this workshop were to: i) kick-start the regional coordination of the project and introduce national stakeholders to one another; ii) introduce all stakeholders to the GEF/LDCF project cycle and the information that needs to be collected during the PPG; and iii) further develop the project rationale and iv) brainstorm on ideas for the design of the project, including baseline projects in each country, and associated interventions. Furthermore the workshop served as a basis to share examples and best practice on ecosystem-based adaptation from other organizations, including UN-Habitat and GIZ.

Description of the tool or method Stakeholder engagement approach, tools and criteria for selecting pilot area for this project has been shared and discussed among participants.

Timeline 8-9 October 2015.

Target audience and beneficiaries	National consultants and national focal points from LDCF project countries.
Outcomes	<ol style="list-style-type: none"> 1. Enhance understanding on Ecosystem Based Adaptation in the context of Urban setting; 2. Progress of consultations in each of the countries was shared and feedback received from other participants; 3. Details and further questions around way forward for project development discussed; 4. Best-practice examples on (urban) EbA was shared
Implementing partners	Resources persons from UNEP, C4 Ecosolutions, UN-Habitat and GIZ.
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>GIZ and UN-Habitat were invited to present several good practices from ongoing projects.</p> <p>Urban area presents a complex system of natural, human and economic system and their complex inter-linkages. Their inter-linkages goes beyond administrative boundary and therefore EbA intervention for Urban system may go beyond its administrative boundary.</p> <p>Regarding knowledge-sharing and training modalities :</p> <p>Participants were invited to share climate vulnerabilities and progress of consultations in plenary. Several breakout sessions to discuss potential examples on adaptation options were organized and groups reported the outcome of discussion back in plenary. Individual sessions with country teams were held to discuss specific country-related issues and questions.</p> <p>Project will develop knowledge sharing and management system during</p>

finalization of project document.

**Further
information**

- UNEP ROAP website: <http://web.unep.org/regions/roap>

21. Regional workshop on protecting health from climate change
 World Health Organization Regional Office for South-East Asia

Countries	Adaptation element	Activities
Bangladesh; Bhutan; India; Indonesia; Maldives; Myanmar; Nepal; Sri Lanka; Thailand; Timor-Leste	adaptation planning and practices; knowledge management	Meeting workshop

Thematic areas

Human health

Key words

Climate change, health, review

Description of the activities The Regional Workshop was attended by about 50 officials from Ministries of Health and Environment of 10 countries of the South-East Asia region. The overall aim of the regional workshop was to enhance national health responses to effectively deal with impacts of climate change. The specific objectives were:

- a. to share evidence on the impacts of climate change on health
- b. to share best practices on mitigation and adaptation measures from different countries
- c. to develop a country roadmap for preparing national health adaptation plans
- d. to improve health sector engagement for preparations and participation for COP 21.

Description of the tool or method Good practices were shared through presentation. Some countries brought poster for display which were visited by participants during breaks.

Timeline The workshop was organized from 15-17 July 2015 in New Delhi, India.

Target audience and beneficiaries Public health professionals and Environment officials

Outcomes

Sharing outcomes of this meeting at the country level:

- Countries to report on the outcomes of this meeting, including their country report, the WHO/UNFCCC country profile and overall synthesis report to their ministries responsible for public health, environment and to their UNFCCC focal point.
- Countries to stimulate the inclusion of the information gathered and shared during the Delhi meeting in their National Communications to the UNFCCC and other relevant reporting mechanisms created under the UNFCCC.
- Using the roadmap exercise work, develop a one page undertaking of what the Ministry of Health is willing to do to promote adaptation and mitigation in the health sector.

Completion and use of Regional synthesis report: Feedback from the workshop will be used to complete the Regional synthesis report. SEARO will use the synthesis report and the recommended priority actions as part of the planning process for the 16/17 biennium workplans and beyond, both at country and regional levels.

Completion of country reports: Countries to respond on their country report including the provision of any new data by 1 August 2015 coordinated by WHO Country Office focal points.

Validation of country profiles: WHO Country Office focal points to coordinate with MOH/MoE, UNFCCC focal point to provide final inputs and validation of the WHO/UNFCCC Country Profile by August 15, noting that the country profile will be part of the advocacy material used at COP21.

Health National Adaptation Plans: All available HNAPs and relevant climate change and health policies/strategies (e.g. vulnerability and adaptation) should be provided to help populate the Interactive Platform for Planning Fundraising and Implementation of HNAPs being established by WHO headquarters. The draft roadmap for preparing HNAP in each member country is summarized in Annex 5.

Communication campaign: Participants should be aware of the “Our Health and

Our Climate” global communication campaign and actively participate in it as far as possible.

Continuing to share information and materials: WHO SEARO to explore ways of setting up networks to share materials (including videos) and to develop and share existing research tools for investigating the health impacts of climate change and existing portals such as researchgate for sharing relevant research findings.

Participation in COP21: Many countries reported on steps they could take within their countries to work more closely with UNFCCC focal point in preparation for COP21. WHO SEARO agreed to explore mechanisms for funding additional health sector representation at COP21 if possible.

Specific recommendations that they would like to see WHO SEARO support for are:

- Increase climate change and health training for sector professional staff, including the SEARO/WPRO Climate Change and Human Health Training Module and UNITAR’s Interactive Learning Module on Climate Change and Human Health. (short term)
- Identify quality technical assistance for development of National Adaptation Plan and to analyse the health impacts of climate change under different development pathways. (short term)
- Establish research agendas to extend existing research on health vulnerability and projected health risks of climate change as well as the effectiveness of adaptation responses. (medium term)
- Identify sources of financial assistance for retrofitting existing infrastructure. (long term)
- Develop national priorities and targets for health adaptation and integrate into NEHAPs and H-NAPS (short term)
- Promote health sector representation on national-level climate change committees. (short term)
- Support community of practice to share research findings and access data on climate modelling, and the geographic distribution of climate-sensitive diseases. (short term).

Implementing partners Resource persons:

Dr Kristi Ebi, University of Washington

Dr Kathryn Bowen, Climate change and health expert, Australia

Ms Payden, WHO/SEARO

Ms Lesley Onyon, WHO/SEARO

Dr David Sutherland, WHO/SEARO

Dr Meghnath Dhimal, Chief/Senior Research Officer, Nepal Health Research Council (NHRC), Kathmandu, Nepal

Professor Rohini de A Seneviratne, Senior Professor in Community Medicine, General Sir John Kotelawala Defence University , Sri Lanka

Dr Nitish Dogra, Sector Adviser (Health & Nutrition), TARU Leading Edge Pvt Ltd, India

Dr.Sarawwut Tangsriskul, Director, Somdejprasangkharach 17 Hospital, Thailand

Ms Faye Ferrer, Healthcare Without Harm, Philippines

Dr. Md. Sirajul Islam, Emeritus Scientist, ICDDR,B, Bangladesh

Dr Vidhya Venugopal, Professor, Department of Environmental Health Engineering, Sri Ramachandra Medical College and Research Institute, India

Ms Elena Villalobos Technical Officer, WHO/Geneva

Ms Marina Maeiro, Technical Officer, WHO/Geneva

Good practice and lessons learned **Regarding adaptation planning:**

The same good practices which were documented in the synthesis report were shared in the meeting.

The challenge lies in replicating these good practices and scaling it up at national level. Getting the support and commitment of policy makers is key for addressing the challenge. Developing evidence and demonstrating good practices are needed for garnering such support.

Regarding knowledge-sharing and training modalities :

Documentation of good practices and sharing them widely encourages and

motivates other countries and stakeholders to take up similar initiatives.

Documentation and sharing them in various forums is very important.

**Further
information**

- WHO website: <http://www.who.int/en/>

22. Review of climate change and health work in South-East Asia region
 World Health Organization Regional Office for South-East Asia

Countries	Adaptation element	Activities
Bangladesh; Bhutan; India; Indonesia; Maldives; Myanmar; Nepal; Sri Lanka; Thailand; Timor-Leste	adaptation planning and practices; knowledge management	Knowledge product; Capacity building activity

Thematic areas

Human health

Key words

Climate change, health, review

Description of the activities A review of the work on climate change and health was carried in 10 member states of South-East Asia region between 2014 and 2015. The review explored awareness levels of the impact of climate change on health among key stakeholders and capacity of health sector to respond and adapt. The review was done through desk top review of various program, policy, strategy and plan combined with online survey of key stakeholders and in country visits in few countries. The country findings were analyzed and synthesized into a regional report. The report details out status of work on climate change and health and provides directions for strengthening health adaptation to climate change in future.

Description of the tool or method Documentation of good practices – only few were available and implemented in countries.

Timeline The review was done in 2014-15.

Target audience and beneficiaries Public health professionals and Environment officials

Outcomes A synthesized report identifying achievements and gaps with recommendations for strengthening further work in the region. Main highlights are: awareness levels among health and other stakeholders on the impact of climate change on

health is quite high while only few are aware of any response taken in the health sector to adapt to climate change. Not all program have mainstreamed climate change in their policies and plans. All countries demonstrated a large array of partnerships with different organizations, which is a positive finding and bodes well for future collaborations. Few case studies such as the zero waste management concept in a hospital in Nepal, greening of hospital in Thailand, climate resilient village in Indonesia and integrated surveillance for climate sensitive diseases in Bhutan were documented as part of the report.

Implementing partners

Dr Kristi Ebi, University of Washington –consultant

Dr Kathryn Bowen, Climate change and health expert, Australia - consultant

Ms Payden, WHO/SEARO – overall coordinator

Program Managers for Climate and Health, Ministry of Health of 10 countries

Program Managers, Ministry of Environment of 10 countries

WHO officials in 10 WHO country offices

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Good practice and lessons learned

Regarding adaptation planning:

Zero waste management in 400 bed Bir Hospital, Kathmandu, Nepal – segregation of waste produced by the hospital, recycling (plastics, paper) and converting biodegradable wastes into energy (biogas). Infected wastes are autoclaved and recyclable ones are sent with general waste for recycling. This reduces the waste that goes for landfilling. Many benefits are observable from the Centre’s operation, ranging from climate change mitigation to capacity development. The total reduction of greenhouse gases within the hospital as a result of the Centre’s activities was estimated to be 75.8 tonnes of carbon dioxide per annum, equating to US\$ 531. In 2012, 79% of total waste is being recycled in the hospital. The cost of setting up the Centre was approximately US\$ 6000, and it is expected that this cost will be paid back in three to four years.

The 17th Somdejphrasangkharaj Hospital (250-bed) in Suphanburi. The hospital has won national and international awards for its innovative programmes involving all departments, including the Thailand Energy Award and the ASEAN Energy Award in 2010, and the Shield of Honor on Green and Clean Hospitals in 2011. In 2011, the hospital reduced their emissions of

carbon dioxide by 13.69% or 252.13 tonnes, which is the equivalent of planting 28 014 trees. The savings from electric energy, thermal energy and carbon dioxide were 5 230 605 baht, counting measures with (4 294 501) and without (936 104) costs. The actions taken also resulted in a healthier workplace, winning a Popular VOTE award on Health Environment in 2012.

Bhutan - The case study selected was based at the Basic Health Unit (BHU) in Samdingkha, approximately 3 hours from the capital, Thimphu. The Ministry of Health collaborates with the Department of Hydro-Met Services, Ministry of Economic Affairs (MoEA), to conduct the project. The Health Assistant at the BHU collects daily rainfall (Figure 10), humidity and maximum and minimum temperatures using the weather station alongside the BHU. Health data are sent monthly in excel format to Department of Public Health (DoPH) and meteorological data are sent on paper to the Department of Hydrology and Meteorology. In the short term, climate sensitivity analysis will be conducted, with a focus on temporal and spatial analysis or vulnerability mapping (risk mapping). In the longer term, the study aims to be able to develop disease forecast models, issue risk warnings and develop a response plan.

The Indonesian Government Ministry of Environment established a Climate Village Programme (Proklim) to award the public's active and integrated participation in addressing climate change. Its implementation involves formal and informal organizations in the community. The programme recognizes the active participation of local communities in implementing actions to achieve the national greenhouse gas reduction target and to increase community resilience to the risks of climate change, taking into consideration the local context.

An example is Kebon Kosong in Kemayoran Central Jakarta. The community designed an active composting programme in which all village members participate. Biological waste is composted and either sold or used to grow a variety of native plants for consumption by the village or for purchase (including seedlings, produce and products made from the plants, such as jam). Each village member volunteers a few hours per week to the composting programme.

The challenge lies in replicating these good practices and scaling it up at national level. Getting the support and commitment of policy makers is key for addressing the challenge. Developing evidence and demonstrating good practices are needed for garnering such support.

Regarding knowledge-sharing and training modalities :

Documentation of good practices and sharing them widely encourages and motivates other countries and stakeholders to take up similar initiatives.

Documentation and sharing them in various forums is very important.

**Further
information**

- WHO website: <http://www.who.int/en/>

23. Training package on climate change and health
World Health Organization Regional Office for South-East Asia

Countries	Adaptation element	Activities
Various countries in Asia	capacity building; education and training	Knowledge product
Thematic areas		Key words
Human health		Climate change, health, capacity development
Description of the activities	The training package consists of 16 standalone modules consisting of basic concepts of climate change, its linkage to health, and detailed discussions about climate change impact on vector borne and water borne diseases, malnutrition, health and UNFCCC, health adaptation, mitigation in health etc.	
Description of the tool or method	Developing knowledge and skills.	
Timeline	The training package was developed by four experts in 2014 and early 2015. The package was finalized in June 2015 and launched in July 2015.	
Target audience and beneficiaries	Public health professionals.	
Outcomes	A comprehensive training package has been developed and is used by many countries to conduct national training.	
Implementing partners	Dr Kristi Ebi, University of Washington – lead author Dr Kathryn Bowen, Climate change and health expert, Australia – Author Dr HK Cheong Sungkyunkwan University School of Medicine - Author Dr Lutfan Lazuardi Gadjah Mada University-Author	

Ms Payden, WHO/SEARO – overall coordinator and reviewer

Dr David Sutherland, WHO/SEARO – reviewer

Dr Roderico Ofrin, WHO/SEARO – reviewer

Ms Vismita Gupta-Smith , WHO/SEARO– reviewer

Dr Leonard Ortega, WHO/SEARO - reviewer

Dr Nasir Hassan, WHO/WPRO- reviewer

Mr Jung Sub Yeom, WHO/WPRO- reviewer

Ms Elena Prats Villalobos, Technical Officer, Climate change and health, WHO/HQ - reviewer

Ms Ute Jugert, Head, Global Program Adaptation to Climate Change in the health sector, Health Section, GIZ - reviewer

Ms Ursula Schoch, Advisor, Global Program: Adaptation to climate change in the health sector, Health Section -, GIZ - reviewer

Ms Kati Thompson, Training Design and facilitation specialist, Australia – design of the package

Dr Nitish Dogra, Principal Public Health Adviser, TARU Leading Edge, India – contributed two case studies

GIZ - financial and technical assistance

Good practice and lessons learned **Regarding adaptation planning:**
Health adaptation planning and its implementation.

Regarding knowledge-sharing and training modalities :

We tried to make the training package simple with examples from the region so that participants can understand. The modules are stand alone so that few can be taken up based on target audiences. For example for policy makers, one or two modules can be used as they don't have much time to spare.

The expertise on climate change and health is still low in our region. We are still dependent on international experts. Through the rolling of the training package, we hope that local expertise will be built. Few countries have plans to roll out the training at national level.

**Further
information**

- WHO website: <http://www.who.int/en/>

24. Bi-regional training on climate change and health
World Health Organization Regional Office for South-East Asia

Countries	Adaptation element	Activities
Bangladesh; Bhutan; India; Indonesia; Nepal; Sri Lanka; Thailand; Timor-Leste; Maldives; Cambodia; Lao People's Democratic Republic; Papua New Guinea; Samoa; Tuvalu; Viet Nam	capacity building; education and training	Capacity building activity

Thematic areas

Human health

Key words

Climate change, health, capacity
development

Description of the activities The training was conducted over 5 days. Eight resource persons facilitated the training by delivering 16 modules of the training package. A pre and post questionnaire was administered to evaluate the impact of the training on participants.

Description of the tool or method Key concept of adaptation and mitigation to climate change were presented and discussed.

Timeline The training was conducted from 26-30 January 2015

Target audience and beneficiaries Public health professionals and Environment officials

Outcomes Around 35 Health and Environment officials from 16 countries from Asia and Pacific regions were trained. To measure the effectiveness of the training package, a questionnaire consisting of 16 technical questions covering the

entire training package was prepared. A pre-test on the first day and post-test on the last day was also conducted with 31 participants taking part in both tests. The test results showed a significant improvement in participant understanding by the end of the training.

Implementing partners Dr Kristi Ebi, University of Washington – lead resource person
Dr Kathryn Bowen, Climate change and health expert, Australia – resource person
Dr HK Cheong Sungkyunkwan University School of Medicine – resource person
Dr Lutfan Lazuardi Gadjah Mada University-resource person
Ms Payden, WHO/SEARO – overall coordinator of the training and resource person
Dr David Sutherland, WHO/SEARO – resource person
Dr Nasir Hasan, WHO/WPRO – resource person
Mr Jung Sub Yeom, WHO/WPRO- resource person
Ms Elena Prats Villalobos, WHO/HQ – resource person
Ms Ute Jugert, GIZ – resource person
Ms Ursula Schoch, GIZ – resource person
GIZ - financial assistance
Gadjah Mada University, Jogjakarta, Indonesia – host institute for the training

Good practice and lessons learned **Regarding adaptation planning:**

The pilot project in Bhutan where integrated disease and meteorological surveillance was implemented with GEF funding was shared. The health workers of Basic health units in the pilot areas are trained to collect both meteorological (humidity, rainfall and temperature) as well as climate sensitive diseases data. These have been collected over several years and the Ministry of health is now analyzing these data, validating them and these will be used for developing health early warning system.

Regarding knowledge-sharing and training modalities :

We tried to make the training package simple with examples from the region so that participants can understand. The training also incorporated interactive sessions, group work so that it becomes a two way learning process. Relevant energizers were used in between session to keep the participants active and engaged.

The expertise on climate change and health is still low in our region. We are still dependent on international experts. Through the rolling of the training package, we hope that local expertise will be built. Few countries have plans to roll out the training at national level.

Further information

- WHO website: <http://www.who.int/en/>

II. Africa

- Final Report of Climate Change Action Plan (2011-2015) using the indicators from the Monitoring & Evaluation Framework
African Development Bank Group (AfDB)

Countries	Adaptation element	Activities
	adaptation planning and practices; communication and outreach/awareness; financial support; monitoring and evaluation; socio economic data and information; capacity building; knowledge management; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Ecosystems; Water resources; Linking local and national adaptation planning	Adaptation, Mitigation, Climate Finance, Climate Finance Tracking Tools, Climate Change Safeguards

- Description of the activities** To complete the activity, activities and related corporate operations. Specifically, the activity aims to:
- Provide a background information based on the Bank’ Climate Change Action Plan (CCAP) document, the progress and Mid Term Review (MTR) reports, and other Bank documents
 - Describe the process of developing and the methodology used for reporting, and identify the methodological constraints and challenges encountered.
 - Present the findings of the CCAP based on the Monitoring & Evaluation performance measurement indicators towards achieving the primary objectives.
 - Present the finding of the CCAP contribution to the Bank’ Result Measurement Framework (Bank’s RMF)
 - Analyse the identified challenges and draw the lessons learned
 - Conclude and recommendations towards the development of the second phase of the CCAP (2016-2022).

Description of the tool or method

- Climate finance tracking tools for agriculture, water and sanitation, transport, energy and infrastructure sectors.
- Climate safeguard systems (CSS)
- CCAP M&E framework

Timeline August 2015 - February 2016

Target audience and beneficiaries Regional Member Countries in Africa (RMCs), Private sector, NGO and community based organizations as target audience; households, women and children as beneficiaries.

Outcomes Performance on adaptation and climate resilient development operations is significant as can be illustrated by:

- 2 sub-regional and one regional institutions using climate information to inform policy and decision-making are actively being involved in activities related to the water and environment sub-sectors as exemplified by two projects: “Support to the establishment of a monitoring and reporting system for the water sector in Africa” and the “Congo Basin MRV Regional”.
- A lesser performance is observed regarding the sub-national and national levels, specifically related to the existence of systems in place to collect, generate and disseminate timely climate risk information.
- 138 adaptation and climate resilient development projects were approved for a total value of USD 2.78 billion. By October 2015, the average disbursement rate was 28.5 %. This disbursement ratio varies significantly according to the approbation year with 72.6 %, 20 % and 14.9 % respectively for the projects approved in 2011, 2012 and 2013. The disbursement ratio of the projects approved in 2014 and 2015 is closer to null; most of the projects are still starting their operational effectiveness as well as the projects approved in 2015.

Performance in mobilizing climate finance for adaptation and climate resilient development

- Globally, 106 % (USD 1.89 billion) of the targeted value has been mobilized for key adaptation and climate resilience development programs, indicating a highly satisfactory performance which is slightly higher than

the anticipated value. By the end of 2015, 90 % of target value (USD 1.13 billion) for Sustainable Water Resource Management (SMRM) program and 146 % of the target value (USD 766.67 million) for Climate Resilience in Key Infrastructure and Urban Systems (CRKIUS) program were mobilized.

- The findings show that 62 % (160) over 258 projects approved for the CCAP portfolio by the end 2015 are funded in the Agriculture and Water Sectors, and are spread in all African countries. However, there is a large variation in the Bank's investment between the climate-resilient adaptation projects and the low carbon development projects. For example, the 90 energy and transport sector projects received 71 % of the climate investments funds, while the Water and Agriculture sectors projects (more than 160) received only 29 % of the funds.

Implementing partners Multilateral Development Banks, Governments, Private sector and NGOs

Good practice and lessons learned **Regarding adaptation planning:**

- The vulnerability assessment was often used as a key entry point for adaptation planning and defining monitoring and evaluation.
- The adaptation planning focuses mainly on addressing livelihoods changes and the wealth gained by end beneficiaries from activities related to e.g. Agriculture production, food security and income generation activities, water resources with irrigation and potable drinking water and access to basic social services.
- The current tracking of climate finance investment which is manually done helps to provide information even if it is not usually made on a timely manner. Moreover, someone may ask about the objectivity of the estimations that are based on a subjective approach of identifying titles and allocating resources per two climate change pillars known as adaptation and mitigation.
- Larger funding projects related to infrastructures and energy may experience delays in the implementation due partly to the complex institutional settings necessary for their implementation.
- Projects/programs are either low carbon development oriented or adaptation and climate resilient development, very low number of projects/programs have an inclusive approach for addressing these two climate change developmental challenges issues that are difficult to segregate in the African

context;

- The disparity between climate finance mitigation and adaptation is significant and has increased between 2011 and 2015 as a result of the use of the definitions of adaptation and mitigation that do not reflect the African context, socio-economic and environment reality and INDCs needs during business plan development in RMCs.
- There is a large variation in the Bank's investment between the climate-resilient adaptation projects and the low carbon development projects. For example, the 90 energy and transport sector projects received 71 % of the climate investments funds, while the Water and Agriculture sectors projects (more than 160) received only 29 % of the funds. This large discrepancy is mainly attributed to the high cost of energy infrastructure and power projects that tend to be regional or transnational in contrast to climate-resilient adaptation projects that are more focus to address directly poverty related issues. It is key in designing climate change business to keep in mind the balance between the development of infrastructures and the promotion of activities that support resilient based economy and address directly poverty reduction.

Regarding knowledge-sharing and training modalities :

- Monthly meetings of climate change coordination committee (CCCC) established in 2011 were very instrumental as a platform for senior management from relevant sector departments to share information and to coordinate cross-sectorial climate change activities
- Regular climate change team meeting was also instrumental to update and sharing of knowledge on the progresses, challenges and ways to address them in the report.

While monthly meetings of climate change coordination committee (CCCC) was very instrumental as a platform for senior management from relevant sector departments to share information and to coordinate cross-sectorial climate change activities, it remains a challenge to make the knowledge actionable for the operations in designing projects and programmes related adaptation or inclusive adaptation and mitigation.

**Further
information**

- Link to the AfDB Climate Action Plan: <http://www.afdb.org/en/topics-and-sectors/sectors/climate-change/2011-2015-afdb-action-plan-on-climate-change/>
- Link to the page on AfDB at the COP21: <http://www.afdb.org/en/cop21/>
- AfDB website: <http://www.afdb.org/en/>

2. Capacity building and knowledge sharing for national and regional level stakeholders on project preparation related to water security and climate resilience

Global Water Partnership – Central Africa Regional Water Partnership & Cameroon Country Water Partnership

Countries	Adaptation element	Activities
Cameroon; Sao Tome and Principe; Chad; Central African Republic; Gabon	adaptation planning and practices; communication and outreach/awareness; financial support; capacity building; knowledge management; stakeholder involvement	Meeting workshop; Capacity building activity

Thematic areas

Water resources

Key words

Climate finance; Capacity development

Description of the activities Within the context of the implementation of the Water, Climate and Development Programme (WACDEP) in Central Africa, GWP Cameroon in collaboration with the GWP Central Africa Regional Water Partnership organized a capacity building workshop for national and regional level institutions on “project preparation related to water security and climate resilience” in Cameroon, from 26th - 28th August 2015.

The 3 day workshop brought together planners from line ministries in Cameroon, Chad and Gabon, and water professionals from Cameroon, Central African Republic and Sao Tome and Principe.

The main objective of the workshop was to introduce participants to the different project preparation steps, the principal water security and climate resilience project financing facilities and institutions, and strategies for prioritizing projects.

Over the course of three days, participants working in groups under the guidance of the experts discussed and analyzed the steps in project preparation. The different project preparation steps discussed included concept note preparation, feasibility studies and project structuring as well as project marketing and transacting. The last day of the workshop was dedicated to

discussing the opportunities and constraints in project preparation and financing.

Within the perspective of project implementation, a particular emphasis was put on the identification of different sources of financing for projects related to water security and climate resilience.

Description of the tool or method WACDEP material produced on project preparation and fund raising introduced through the workshop and shared with participants.

Timeline 26th - 28th August 2015

Target audience and beneficiaries Ministerial level planners and water professionals from Cameroon, Central African Republic, Chad, Gabon and Sao Tome and Principe

Outcomes

- Establishment of a task force for bankable project development and fund raising (consisting of GWP Central Africa, GWP Cameroon, CICOS and ECCAS) to support the optimization of project preparation and finance mobilization.
- Approval of ClimDev funding for a GWP Cameroon supported project on climate resilience in rural areas for food security and poverty reduction.

Implementing partners Supporting partners: International Commission for Congo-Ubangi-Sangha Congo basin (CICOS); Economic Community of Central African States (ECCAS)

Good practice and lessons learned **Regarding knowledge-sharing and training modalities :**

- How to recognize and address project preparation opportunities and obstacles linked to their financing;
- How to better understand and approach the different sources of financing for water security and climate resilience projects in Central Africa, and their accessibility conditions;
- Recognising the difference between funding and implementing institutions in programmes/projects

Lessons learned

- Embedding water security and climate resilience into developing planning processes is crucial for effective mobilization of water and climate related finances;
- Ambiguities exist between implementing organizations and funding institutions within the development context;
- Key obstacles to project development could be legislative, organizational and/or financial;
- Insufficient funding mobilized for projects related to water security and climate resilience and national level, thus high dependence of sector on external sources of financing.

Further information

- Link to the GWP webpage on WACDEP: <http://www.gwp.org/GWP-Central-Africa/GWP-CAf-EN-ACTION/ACTIVITIES/WACDEP-a-lever-for-creating-water-security-and-climate-resilience-national-expertise/>
- GWP website: <http://www.gwp.org/>

3. Regional Training Workshop for Decision Makers on Valuing Ecosystems in the Orange-Senqu River Basin

International Union for Conservation of Nature – Eastern and Southern Africa (IUCN-ESARO)

Countries	Adaptation element	Activities
Botswana; Lesotho; Namibia; South Africa	institutional arrangements; capacity building; education and training; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Ecosystems; Water resources	Value, ecosystem services, resilience, stakeholder involvement

Description of the activities Although biodiversity and ecosystem services are central to local livelihoods in the Orange-senqu River Basin, and are therefore essential for achieving sustainable climate change adaptation in the region, the critical services that ecosystems deliver are often overlooked in decision-making regarding development projects. The workshop aimed to help demonstrate that the conservation of natural capital is essential to long-term economic security and human well-being and climate change resilience in the basin. The objective of the training was to provide high governmental officials from the four countries and stakeholders involved in water management, economic, investment and developmental decisions, with a sound understanding of the conceptual approach to ecosystem valuation, especially in terms of water management, including the rationale for such an approach.

Description of the tool or method Water contributes immensely to the economies of the Orange-Senqu River Basin Riparian states such that improved water supply and sanitation together with improved water resources management boosts country’s economic growth and poverty reduction. The following methods were shared:

- The implementation of various interventions in the ongoing pilot sites shall, in addition to current actions, be reinforced by a process of vulnerability mapping to identify hot spots, risks and vulnerabilities that impact on the water sector in the face of climate change. This will inform the development of robust medium to long-term plans to guide evidence-based decision making processes.

- Measures to promote wise management of ecosystems for water services can help to prolong the economic lifespan of dams and reservoirs, ensure future domestic and industrial water supplies, and maintain the productivity of commercially valuable fish and plant stocks.
- Investment in water infrastructure and institutions make national economies more resilient to weather shocks –droughts and floods.

Timeline

The training workshop was held on the 15th to 18th September 2015. The workshop was part of implementing the two ongoing programmes by IUCN-ESARO in the Orange-senqu basin namely;

1. Water secure future for Southern Africa: Applying the ecosystem approach (EA) in the Orange-Senqu Basin
2. Kalahari-Namib Project: Enhancing Decision-Making through Interactive Environmental Learning and Action in the Molopo-Nossob River basin in Botswana, Namibia and South Africa.”

Next steps:

- Ensure implementation of actions in the ongoing Pilot demonstration projects in each of the riparian states.
- Sharing of information to strengthen the existing an institutional bodies (task teams) within the ORASECOM to assist decision making for management of ecosystems in the basin.

Target audience and beneficiaries

Governments and local communities (depending on Orange-senqu ecosystems) of Botswana Lesotho, Namibia and South Africa.

Outcomes

The outcomes of the training program, were:

- Enhanced knowledge of the approach of ecosystems valuation and its role to support IWRM and climate change Adaptation;
- Increased knowledge about the valuations methodologies, tools and technics;
- Understanding the challenges related to environmental valuation approach
- Strengthening capacities for incorporating environmental considerations in decisions making in management of the basin.

Implementing

1. Water secure future for Southern Africa: Applying the ecosystem approach

partners

(EA) in the Orange-Senqu Basin

- IUCN-ESARO implementation of pilot project in basin states: Botswana (Kalahari Conservation Society (KCS)), Lesotho (Serumula development association (SDA)), Namibia (Desert Research Foundation of Namibia (DRFN)) and South Africa (Endangered Wildlife Trust (EWT))
- ORASECOM and SADC Water Division strategic guidance
- USAID funding

2. Kalahari-Namib Project: Enhancing Decision-Making through Interactive Environmental Learning and Action in the Molopo-Nossob River basin

- Governments of Botswana, Namibia and South Africa
- IUCN-ESARO- Executing role
- UNEP: Implementing role
- Funding sources: GEF

Good practice and lessons learned

Regarding adaptation planning

The following good practices were shared:

- An inclusive and structured process to engage stakeholders at the lowest accountable level will help manage conflict and promote ownership of adaptation interventions.
- A mix of top-down and bottom-up measures (from the transboundary or international level to the regional, national and local levels) are beneficial. The pilot demonstration projects in each of the countries have started to bridge this gap to some extent.
- Participatory techniques and a bottom-up approach ensures that stakeholders play an active role in determining appropriate strategies for the management of river basins.

The following lessons were shared:

- If riparian states, private companies, NGOs and even households are to be convinced that sustainable management and expenditure on improved water supply is worthwhile, stronger evidence is needed to better understand the various impacts of unsustainable water management on growth and development.
- Livelihood diversification solutions inspire local commitments and actions to climate change resilience.
- Investment in water infrastructure and institutions make national economies more resilient to climate change effects.
- Ecosystems have an economic value in relation to water, but this value is

poorly understood and rarely articulated. There is need for a good understanding of the valuation of ecosystems as an entry point for adaptation planning and timing is important in the process.

- Ecosystem valuation guides decision making through ensuring that economic and environmental objectives are aligned thereby identifying costs and benefits for taking necessary decisions.

Regarding knowledge-sharing and training modalities :

- Communication and exchange of experiences to promote further learning
- Involvement of both government and non-government stakeholders is key to ensuring effective adaptation planning processes. Building partnerships with both government and non-government stakeholders is integral in supporting more resilient development and avoiding conflicts and inequalities.

Further information

- IUCN-ESARO website:
<https://www.iucn.org/about/union/secretariat/offices/esaro/>

4. Implementing a resilience framework to support climate change adaptation in the Mt Elgon region of the Lake Victoria Basin

International Union for Conservation of Nature – Eastern and Southern Africa
(IUCN-ESARO)

Countries	Adaptation element	Activities
Kenya; Uganda	adaptation planning and practices; communication and outreach/awareness; socio economic data and information; capacity building; climate scenarios; education and training; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity
	Thematic areas	Key words
	Ecosystems; Water resources; Linking local and national adaptation planning	

Description of the activities Implementing a resilience framework to support climate change adaptation in the Mt Elgon region of the Lake Victoria Basin, the following specific activities were undertaken:

- Implementation of climate change adaptation actions - land and water management practices that increase social and ecological resilience and mainstream ecosystem services and economic diversification;
- Production of knowledge products (briefing notes, posters, atlas, documentaries etc.) that highlights our experiences from the project to enhance learning and capacity building on climate change adaptation issues; and
- Production scientific knowledge products (technical reports) to improve preparedness for a changing climate future in the Mt Elgon region.

Description of the tool or method

- ACCESS used Remote-sensing and GIS tool to generate scientific information on Mt Elgon ecosystem in relation to the identification of priority catchments and/or hotspots that were experiencing risks associated with climate change. It was on these priority sites that climate change adaptation actions were implemented;
- IUCN used poverty and livelihood assessment tool kit to generate socio-economic 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 complemented the natural science data (gathered by ACCESS) and informed the planning and implementation of the adaptation actions. In addition, it generated the socio-economic baseline information against which change in the adaptive capacity of the people was to be measured;

- Community Environment Action Plan in the pilot villages was used to identify and prioritize climate change adaptation actions;
- Adaptation actions included soil and water conservation measures - restoration and protection of the riverine vegetation and degraded landscapes;
- A strategy and guidelines has been produced for integrating climate change adaptation approaches in trans-boundary ecosystem management in East Africa;
- Training manual for Grafted Fruit Trees Raising and Management. This will go a long way in assisting the District/County Technical staff, extension workers and farmers in nurturing this young enterprise into the future for sustainability.

Timeline These activities were delivered as part of the USAID funded project - Implementing a resilience framework to support climate change adaptation in the Mt Elgon region of the Lake Victoria Basin, between 2012-2015.

Target audience and beneficiaries Local Communities, District and County Governments on Mt. Elgon region.

Outcomes Demonstration of nature based solutions to climate change.

Implementing partners East African Community Lake Victoria Basin Commission (EAC LVBC); African Collaborative Centre for Earth System Science (ACCESS) based at the University of Nairobi; Global Water Partnership (GWP-EA); District and County Governments on Mt. Elgon region.

Good practice and lessons **Regarding knowledge-sharing and training modalities :**
Key lessons learned from the project and recommendations for the way forward

learned

has been documented and includes:

1. Resolving the challenges in the Mt. Elgon Ecosystem would require a comprehensive long-term and integrated programmatic approach that incorporates conservation with rural development and disaster risk reduction and climate change adaptation. In addition to taking into account the rights based approach with secure land tenure and community empowerment;
2. In recognition of the importance of stakeholders' collaboration, IUCN, in collaboration with key Partners implementing projects in Mt Elgon initiated the establishment of the Mount Elgon Stakeholders Forum as a major platform for sharing lessons and bridging coordination gaps while leveraging stakeholder efforts to enhance results and ensure that project results influence policy directly. To sustain the stakeholders' collaboration, it is recommended that the Forum is embedded within the proposed Lake Victoria Basin Commission institutional framework for managing Mt Elgon ecosystem as Man and Biosphere (MAB) Reserve;
3. Up-scaling best practices require a relatively strong policy and law environment as well as well functioning institutions with the mandate of enforcing environmental law at the local level. Both Kenya and Uganda have an impressive set of policies for natural resources management and elaborate institutional arrangement for policy formulation and implementation. However, the implementation part has not been successful due to challenges in budgetary allocation. Therefore, the recommendation is to put in place a sustainable financing mechanism for the Mt. Elgon ecosystem;
4. Much of the Mt. Elgon ecosystem natural vegetation is forest-based, making the Forest Landscape Restoration (FLR) a relevant approach for its restoration;
5. Underlying all the above lessons is the absence of knowledge management systems which hampers learning, sharing of lessons and applying adaptive management which is instrumental in up-scaling best practices. Therefore, going forward, it would be imperative to include knowledge management in future programming on Mt Elgon to assist in promoting evidence-based Decision-Making Culture, that is, the extent to which knowledge is incorporated into the decision-making process influenced by lessons learnt, and what is best practice elsewhere.

**Further
information**

- Atlas on Mt Elgon – <https://www.dropbox.com/sh/4bko80gje7kt1h9/AAArXvXC1jBVfBfuCvG8fxOKa?dl=0>. ;
- Documentary titled Think Nature – <https://www.youtube.com/channel/UCvTMoGodTM596KJrZLouCZO/feed>
<https://www.youtube.com/watch?v=U8BDCetdjkw&feature=youtu.be>
<https://www.youtube.com/watch?v=U8BDCetdjkw&feature=youtu.be> (5 minutes version)
<https://www.youtube.com/watch?v=e8YxZATAiDE> (20 minutes version);
- ACCESS/IUCN (2014): Geospatial analyses for implementing a resilience framework for climate change adaptation in the Mt. Elgon Region of the Lake Victoria basin,
- ACCESS/IUCN (2014): An Overview of Climate Change Impacts and Adaptation in Tropical Mountain Ecosystems,
- IUCN (2015): Feasibility of Beekeeping in Swam and Manafwa Catchments, Uganda,
- IUCN/ACCESS (2014): Building Resilience to Climate Change on Mt. Elgon: Policy Implications and Recommendations,
- IUCN/ACCESS (2014): Using Science to Inform Climate Change Adaptation Actions on Mt. Elgon, Kenya and Uganda – a briefing note.
- An educational photo-book, “Think Nature” for learning and policy influencing.
- IUCN/GWP (2015) briefing note, “Strategy and Guidelines for Integrating Climate Change Adaptation Approaches in Trans-boundary Ecosystem Management in East Africa” for policy influencing.
- IUCN (2013): “Practical guidelines for establishing a Community Environment Conservation Fund as a tool to Catalyze Social and Ecological Resilience”.
- IUCN-ESARO website:
<https://www.iucn.org/about/union/secretariat/offices/esaro/>

5. Training on Partnership for Environment and Disaster Risk Reduction
International Union for Conservation of Nature – West and Central Africa
(IUCN-PACO)

Countries	Adaptation element	Activities
Burkina Faso	capacity building; education and training; vulnerability assessment	Meeting workshop; Capacity building activity

Thematic areas	Key words
Ecosystems; Water resources	Disaster, risk, adaptation, climate change, ecosystem, resilience, vulnerability

Description of the activities The objectives of the training on Partnership for Environment and Disaster Risk Reduction were:

1. To increase awareness among key players about the multiple benefits of ecosystem services for disaster risk reduction (DRR) and sustainable development, and the methods for sustaining and enhancing these services.
2. To develop knowledge and skills on how to integrate ecosystem management and DRR into climate resilient development planning processes.
3. To promote and facilitate cross-sectoral collaboration amongst environmental/ecosystem management, DRR, climate change adaptation and development practitioners.

Description of the tool or method The training have been delivered in forms of communication followed by exchanges. The topics of the communications were focused on:

- Key concepts on environment, ecosystem, ecosystem benefits, biodiversity, resilience, vulnerability, and climate change, etc.
- Contribution of protected areas to disaster risk reduction and climate change adaptation
- How to make our cities resilient to natural hazards?
- Contribution of environmental assessments to disaster risk reduction and climate change adaptation
- Ecosystem-based disaster risk reduction (Eco-DRR)
- Contribution of Integrated Water Resource Management to disaster risk

reduction and climate change adaptation

- Links between development, ecosystems and natural hazards
- Contribution of sustainable management of land to disaster risk reduction and climate change adaptation
- Synergies between ecosystem-based disaster risk reduction (Eco-DRR) and ecosystem-based adaptation (EbA)
- Participatory mapping of risks and vulnerability and capacity assessment for disaster risk reduction and climate change adaptation.

Timeline The training on Partnership for Environment and Disaster Risk Reduction was delivered from 29 to 30 April 2015 in Burkina Faso (Ouahigouya, North of the country) and this activity was part of the ongoing project “Ecosystems Protecting Infrastructures and Communities”.

Target audience and beneficiaries Decision makers and technical partners

Outcomes 40 persons trained on Partnership for Environment and Disaster Risk Reduction.

Implementing partners Local authorities, local technical services in charge of rural development, local NGOs, IUCN members, IUCN Commissions members.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities :**
Adaptation and disaster risk reduction based on ecosystems

- Sustainable land management good practices
- Environmental assessment tools

The first step of building partnership for disaster risk reduction and climate change adaptation is the strengthening of the capacities of the stakeholders. It is necessary that all those involved have a common understanding of the issues.

A good knowledge of planning and decision-making tools by the local

authorities and local technical services allow to strengthen efforts to disaster risk reduction and climate change adaptation.

**Further
information**

- PACO news website: https://www.iucn.org/news_homepage/all_news_by_region/news_from_west_and_central_africa/
- IUCN website: <https://www.iucn.org/>

6. Protected Areas Resilient to Climate Change (PARCC)
 International Union for Conservation of Nature – West and Central Africa
 (IUCN-PACO)

Countries	Adaptation element	Activities
Gambia; Sierra Leone; Mali; Togo; Chad; Burkina Faso; Liberia; Cameroon	adaptation planning and practices; communication and outreach/awareness; financial support; institutional arrangements; technology support; capacity building; climate scenarios; education and training; impact assessment; knowledge management; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity; Other

Thematic areas	Key words
Ecosystems; Linking local and national adaptation planning	Protected areas, resilience, conservation planning, climate modelling, vulnerability assessment, transboundary, connectivity

Description of the activities The main objective of the project was to develop strategies and tools to increase the resilience of Protected Areas (PA) to climate change, and build capacity in the region to implement these new approaches. In the project, we define resilience of protected areas as their ability to cope with climate change impacts in ways that maintain their essential functions and capacity for adaptation. A key aspect of protected area resilience is the capacity to retain biodiversity, which in this project was assessed in terms of the expected turnover of species in the future, taking into account both species biological traits and spatial distributions. To conduct these analyses and achieve its objectives, the project required continuous support and engagement from all national, regional, and international partners.

Description of the tool or method GIS based modelling tools, vulnerability maps, GIS based conservation planning tools.

Timeline Delivered throughout 2015. Closing in June 2016.

Target audience and beneficiaries	National Protected Areas Agencies and local communities.
Outcomes	<p>Products: Climate projections, future species distributions, Species vulnerability assessments, regional PA network connectivity assessments.</p> <p>Tools: Conservation planning tools.</p> <p>Capacity Building: national agency staff trained in using the products and tools. Transboundary conservation agreements.</p>
Implementing partners	WCMC, Birdlife, Met Office UK, DICE University of Kent, Durham University.
Good practice and lessons learned	<p>Regarding knowledge-sharing and training modalities :</p> <p>Priorisation based on reliable information.</p> <p>Lessons learned:</p> <ul style="list-style-type: none"> ▪ The climate of West Africa has been observed to be changing in recent decades, with some of these changes clearly attributable to climate change. Regional climate projections show that there is a high level of confidence that temperatures will increase in the region, but there is little consensus on the direction and magnitude of potential changes in rainfall, with a high variability between projections. These changes are expected to have significant impacts on ecosystem services such as carbon storage. ▪ Biodiversity and protected areas are being affected by climate change and some protected areas are more vulnerable than others to its impacts. A significant number of West African species (including amphibians, birds, freshwater fish, mammals and reptiles) have been identified as being vulnerable to climate change based on their specific biological traits. Of these species, those that have been assessed as globally threatened should be considered priorities for conservation. A large proportion of amphibian, bird and mammal species are expected to be found in areas of lower climate suitability by the end of the century, and a high species turnover is expected

in most protected areas of the region, especially in the Guinean Forest region.

- Protected area management should be improved in order to enhance the resilience of protected areas to climate change. Protected areas in West Africa are indeed facing a number of anthropogenic threats. It is therefore crucial to first improve the management effectiveness of existing PAs to give them a better chance to be able to cope with climate change impacts. For species identified as vulnerable to climate change, specific management options are to facilitate their dispersal and to identify sites of suitable climate persisting within their current ranges. In addition, in order to fully protect all essential conservation features of the region, it is recommended that existing PA networks are extended.

**Further
information**

- PACO news website: https://www.iucn.org/news_homepage/all_news_by_region/news_from_west_and_central_africa/
- IUCN website: <https://www.iucn.org/>

7. Training on climate change integration into development planning
 International Union for Conservation of Nature – West and Central Africa
 (IUCN-PACO)

Countries	Adaptation element	Activities
Cote d'Ivoire; Togo; Benin; Niger	adaptation planning and practices; monitoring and evaluation; capacity building; education and training; vulnerability assessment	Capacity building activity

Thematic areas	Key words
Ecosystems; Water resources; Linking local and national adaptation planning	Planning, adaptation, climate change, tools, development

Description of the activities The objectives of the training on climate change integration into development planning were:

- To form a regional pool of additional expert trainers in the use of tools for planning and monitoring/evaluation of climate change adaptation capacity.
- To build in each country the capacity of national structures in charge of development planning and private actors in the use of tools for planning and monitoring/evaluation of climate change adaptation capacity.

Description of the tool or method The toolkit for planning, monitoring and evaluation of climate change adaptation capacity was shared and disseminated. This toolkit is composed of 11 tools:

Tool 1: Vulnerability analysis and capacity to adapt to climate variation.

- To obtain a sketch map representation of resources (natural, physical, financial, social, and human) available within a community, as well as climate hazard related to each identified resource.
- To determine climate hazard that have the most serious impact on livelihood resources, and to determine the most vulnerable socio-economic 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 (CRiSTAL).

- 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), which contribute to the vulnerability of communities vis-à-vis climate hazards they have to deal with.
- To establish a baseline of the impact of climate hazards on communities and their resources.
- To determine the capacities/means available to the most vulnerable groups and communities.

Tool 4: Vision-Action-Partnerships.

- To record elements on desired future conditions (vision) of each individual member of a community.
- To obtain an agreement on a concerted vision.
- To articulate actions of different sectors and administrative levels.
- To identify partnerships that the community needs to realize their 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 behavioral change from 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 adaptive capacities of a community.
- To select outputs to be provided to boundary partners.

Tool 8: Matrix of M&E data for the identified actions

- To provide a matrix including all information needed to implement an efficient monitoring of activities.
- To assess costs and challenges related to implementation of the M&E 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, analyzed and disseminated.
- To set up a management information system.

Tool 10: Most Significant Changes (MSC).

- To collect testimonials about the most significant changes occurring in a community following project's interventions.
- To record unexpected outcomes

Tool 11: Outcome Journal

- To record movement of progress markers as well as behavioral changes of each boundary partner.

Timeline

The training on climate change integration was part of the ongoing project “Partnership for Environmental

Governance in West Africa” and was delivered in two steps:

Step1: Training of regional pool of expert trainer in Ivory Coast from 23 to 27 February 2015

Step 2: Training of national structures in charge of development planning and private actors in Togo and Benin from 30 March to 3 April 2015.

Target audience and beneficiaries National structure in charge of developing planning and private actors of Ivory Coast, Mali, Guinea, Togo and Benin

Outcomes

- 14 experts trainers trained on capacity built on the use of tools for planning and monitoring/evaluation of climate change adaptation capacity
- 55 national structures members and private actors trained on the use of tools for planning and monitoring/evaluation of climate change adaptation capacity

Implementing partners Ministries in charge of rural development and development planning and private actors of Ivory Coast, Mali, Guinea, Togo and Benin

Good practice and lessons learned **Regarding knowledge-sharing and training modalities :**
Good practices:

- Tools for planning and monitoring activities to adapt to climate change
- Methodology and tools to integrate climate change adaptation into local planning

Lessons learned:

The strengthening of national bodies in charge of development planning is essential for integration of climate change adaptation into local planning.

The integration of climate change adaptation into local planning is key factor for a sustainable development.

Further information

- PACO news website: https://www.iucn.org/news_homepage/all_news_by_region/news_from_west_and_central_africa/
- IUCN website: <https://www.iucn.org/>

8. Development of the West African coastal observation mechanism
 International Union for Conservation of Nature – West and Central Africa
 (IUCN-PACO)

Countries	Adaptation element	Activities
Mauritania; Senegal; Gambia; Guinea-Bissau; Sierra Leone; Liberia; Cote d'Ivoire; Ghana; Benin; Togo	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; socio economic data and information; knowledge management; stakeholder involvement	Meeting workshop; Knowledge product; Other
	Thematic areas	Key words
	Ecosystems; Human settlements	Coastal risks, erosion, West Africa, UEMOA

Description of the activities Development of the West African coastal observation mechanism:

- Technical workshop to update the West African Coastal masterplan;
- Regularly update the regional database on issues, hazards and basic data on land use;
- Sharing information about coastal risks, countries experiences and international good practices.

Description of the tool or method Methods :

- Coastal issues and Coastal Hazards forms for national reports of events
- WA Coastal master plan which divide the WA coastline in 180 homogeneous sectors form observation system and provide characterization criteria.

Timeline It's a continuous activity, since the adoption of the West African coastal masterplan in 2011, a first project (2013-2015) aim to put in place the West African Observation Mission (including a regional coordination and 11 national focal teams).

Target audience and beneficiaries	<p>Coastal risks experts from 11 West African countries.</p> <p>Decision-makers on coastal area of 11 West African countries.</p>
Outcomes	<ul style="list-style-type: none"> ▪ Information on soft coastal protection tools has been disseminated to the MOLOA Mailing list (more than 1000 experts from West Africa region); ▪ Knowledge and experiences have been exchanges ▪ Knowledge on coastal issues and hazards have been strengthened specifically the evolution from 2011 to 2015.
Implementing partners	<p>West African Economic and Monetary Union (UEMOA) is currently funding the process to implement the West African Programme to fight against coastal erosion.</p> <p>The Ecological Monitoring Center of Dakar (CSE) ensure the regional coordination of the regional coastal observation mechanism in partnership with IUCN.</p>
Good practice and lessons learned	<p>Regarding knowledge-sharing and training modalities :</p> <p>Good practices: Atlantic Network for Coastal Risks Management (ANCORIM) project guidelines on soft coastal protection solutions.</p> <p>Lessons learned:</p> <p>The major coastal issues in West Africa is the coastal urban sprawl and associated infrastructures, specifically ports extension.</p> <p>Hard coastal protection solutions generate very often related problems in WA. Soft solutions and specifically planning of coastal areas need to be used first. If hard solutions are used it must be followed by robust monitoring and evaluation system.</p>

**Further
information**

- UEMOA website: <http://www.uemoa.int/Pages/Home.aspx>
- CSE website: <http://www.cse.sn/>
- CSE, MOLOA project (Mission d'Observation du Littoral Ouest Africain) – in French : <http://www.cse.sn/moloa>
- IUCN webpage on costal erosion and management of West African costal areas (in French):
https://www.iucn.org/fr/propos/union/secretariat/bureaux/paco/programmes/programme_marin_et_cotier_maco/projets/thematique_aménagement_in_tegre_du_littoral_/erosion_cotiere_et_schema_damenagement_du_littoral_ouest_africain/
- PACO news website:
https://www.iucn.org/news_homepage/all_news_by_region/news_from_west_and_central_africa/
- IUCN website: <https://www.iucn.org/>

9. TerrAfrica Knowledge platform

New Partnership for Africa's Development (NEPAD), Secretariat of TerrAfrica Partnerships on Sustainable Land and Water Management Programme

Countries	Adaptation element	Activities
	adaptation planning and practices; communication and outreach/awareness; monitoring and evaluation; capacity building; education and training; knowledge management; stakeholder involvement	Other
	Thematic areas	Key words
	Ecosystems; Linking local and national adaptation planning	
Description of the activities	TerrAfrica Knowledge platform established in early 2015 provides a virtual space for community of practice to interact among each other and with experts from within and outside the continent. One e-learning course has been offered with 446 African participants and 16 knowledge videos have been made available through the platform during the period under reporting (June to December 2015).	
Timeline	The activity was organized in 2015 in the context of implementing the Learning Programme of TerrAfrica, jointly initiated by NEPAD Agency and the World Bank Institute (WBI) to meet the specific learning needs expressed by TerrAfrica's partner countries.	
Target audience and beneficiaries	a) National National Sustainable Land and Water Management Programme (SLWM) focal point of the 26 countries members of TerrAfrica Partnership b) Representative of Regional Economic Communities (ECOWAS, ECCAS, COMESA) c) SLWM actors worldwide	
Outcomes	a). National and regional SLWM players have a comprehensive understanding of the links between landscape approach, climate change adaptation and	

SLWM;

b). National and regional SLWM players have a platform for sharing of experiences by countries and various stakeholders in the development of country SLM investment frameworks particularly on Integrated Land and Water Management, Landscape Approach and Climate Change Adaptation;

c). National and regional SLWM players are more aware of the on Integrated Land and Water Management, Landscape Approach and Climate Change Adaptation potential benefits in mitigating and adapting to the effects of climate change and contribution to sustainable food production for the region.

Implementing partners Worldbank: Technical support, moderator of the course

Further information

- Link to the TerrAfrica Knowledge platform: <http://terrafrica.org/>
- NEPAD website: <http://www.nepad.org/>

10. The Lesotho's workshop and knowledge sharing event (April 2015)
 New Partnership for Africa's Development (NEPAD), Secretariat of TerrAfrica Partnerships on
 Sustainable Land and Water Management Programme

Countries	Adaptation element	Activities
	adaptation planning and practices; communication and outreach/awareness; financial support; institutional arrangements; monitoring and evaluation; socio economic data and information; capacity building; education and training; knowledge management; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity; Other
	Thematic areas	Key words
	Ecosystems; Water resources; Linking local and national adaptation planning	
Description of the activities	Please refer to the specific report of each activity.	
Description of the tool or method	EXACT tool to estimate GHG emissions and carbon sequestration and disaster risks screening tools	
Timeline	The activity was organised in April 2015 within the context of implementing the Learning Programme of TerrAfrica, jointly led by NEPAD Agency and the World Bank Institute (WBI) to meet the specific learning needs expressed by TerrAfrica's partner countries.	
Target audience and beneficiaries	a). National Sustainable Land and Water Management Programme (SLWM) focal points of the 16 countries members of the TerrAfrica Partnership b). Representative of Regional Economic Communities (Economic Community of West African States (ECOWAS), Economic Community of Central African	

States (ECCAS), Common Market for Eastern and Southern Africa (COMESA))

- Outcomes**
- a). National and regional SLWM players have a comprehensive understanding of the links between integrated landscape approaches, climate change adaptation and SLWM;
 - b). National and regional SLWM players have a platform for sharing of experiences from countries and various other stakeholders in the development of country SLWM investment frameworks particularly on Integrated Land and Water Management, Landscape Approach and Climate Change Adaptation;
 - c). National and regional SLWM actors are more aware of the on Integrated Land and Water Management, Landscape Approach and Climate Change Adaptation potential benefits in mitigating and adapting to the effects of climate change and their contribution to sustainable food production for the region.

Implementing partners

Worldbank: Technical presentation and training

EcoAgriculture: Technical presentation

CIFOR: Technical presentation

CILSS: technical presentation

African Centre For Green Economy: Technical presentation

Good practice and lessons learned

Regarding adaptation planning

Good practices:

- Country experiences in estimating GHG emissions in adaptation projects/activities
- Tools to prepare country strategic investment frameworks (CSIFs) on SLWM taking into account climate changes aspects

Lessons learned:

The NEPAD Agency and the TerrAfrica partners recognize the importance of knowledge and information sharing in facilitating up scaling of best practices in the implementation of national investment frameworks for sustainable land and Water management. In this regard, one of the key priority areas in the

TerrAfrica joint work programming is fostering knowledge management, generation and information and knowledge exchange and dissemination. In this regard, the learning event visit increased awareness of landscape approaches (LA) among SLWM project teams at both country and regional levels. The event also provided a platform for national SLWM players to share their experiences regarding Integrated Land and Water Management, Landscape Approach and Climate Change Adaptation.

**Further
information**

- Link to the TerrAfrica Knowledge platform: <http://terrafrica.org/>
- NEPAD website: <http://www.nepad.org/>

11. Communication Seminar for government Communication experts on Sustainable Land and Water Management/TerrAfrica Anglophone countries in Nairobi, Kenya (August 2015)

New Partnership for Africa’s Development (NEPAD), Secretariat of TerrAfrica Partnerships on Sustainable Land and Water Management Programme

Countries	Adaptation element	Activities
Eritrea; Ethiopia; Gambia; Ghana; Lesotho; Kenya; Malawi; Nigeria; United Republic of Tanzania; Uganda	monitoring and evaluation; knowledge management	Meeting workshop; Knowledge product; Capacity building activity; Other

Thematic areas	Key words
Ecosystems; Water resources; Linking local and national adaptation planning	

Description of the activities The aim of the seminar was to raise the level of awareness of TerrAfrica’s Sustainable Land and Water Management (SLWM) program within agriculture and environment sectors, and to enhance national systems for greater participation of the public and various constituencies in the environment and agriculture sector. This proves imperative in empowering communities with information and knowledge to fighting land degradation and transforming landscapes for growth, through national communication systems.

Description of the tool or method (i). Understand the information requirements of Communication and Information Directors in communicating on land degradation, climate change and Sustainable Land and Water Management issues;

(ii). Provide orientation and information on SLWM and increase the media coverage on drought, climate change, land and water and desertification issues, as well as assess how African governments are communicating SLWM; and

(iii). Strengthen the officer’s ability to tell a story using a right format, using persuasive language, to the right audience with the right aim/purpose.

Timeline The activity was organized from 17 to 21 August 2015 within the context of implementing the Learning Program of TerrAfrica, jointly initiated by NEPAD Agency and the World Bank Institute (WBI) to meet the specific learning needs expressed by TerrAfrica’s partner countries.

Target audience and beneficiaries	The seminar was for the 10 TerrAfrica Anglophone member countries (Ethiopia, Eritrea, Gambia, Ghana, Kenya, Lesotho, Malawi, Nigeria, Tanzania and Uganda) and the two Regional Economic Commissions, Common Market for Eastern and Southern Africa (COMESA) and Economic Community of West African States (ECOWAS).
Outcomes	<ol style="list-style-type: none"> 1. The seminar sought to draw public attention to the issues surrounding Sustainable Land and Water Management (SLWM) in various countries by raising awareness at the national level about the goals of SLWM. This was attained through sharing information on SLWM issues. Many participants emphasized their understanding of SLWM as a programme/process, pivotal for environment and agricultural transformation. 2. Best practices in media communications shared across countries with focus on how NEPAD can render support through the SLWM Country Focal Points, the TerrAfrica Green Radio Journalists Network and various platforms for increased buy-in on SLWM as a tool for transformation in African communities. 3. Participants showed appreciation for the seminar as a platform for peer learning across countries on best practices in SLWM communications as well as lessons on overcoming challenges.
Implementing partners	The NEPAD Agency, Regional Economic Communities and member states.
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>Best practices in media communications shared across countries with focus on how NEPAD can render support through the SLWM Country Focal Points, the TerrAfrica Green Radio Journalists Network and various platforms for increased buy-in on SLWM as a tool for transformation in African communities.</p>

**Further
information**

- Link to the TerrAfrica Knowledge platform: <http://terrafrica.org/>
- NEPAD website: <http://www.nepad.org/>

12. Thematic regional workshop - Sustainable forest ecosystems management in arid and semi-arid zones to improve resilience to climate change and increase carbon sequestration, and study tour - Case study: Forests in Jordan
[Sahara and Sahel Observatory \(OSS\)](#)

Countries	Adaptation element	Activities
Algeria; Morocco; Egypt; Jordan; Tunisia; Benin; Burkina Faso; Ethiopia; Ghana; Mauritania; Mali; Nigeria; Senegal; Sudan; Chad; Togo	adaptation planning and practices; communication and outreach/awareness; institutional arrangements; socio economic data and information; capacity building; knowledge management; stakeholder involvement	Meeting workshop; Knowledge product; Other

Thematic areas	Key words
Ecosystems; Human settlements	Climate change, Adaptation, mitigation, forests, population

Description of the activities OSS organized a six weeks online exchange forum in October-November 2016 and a study tour to Jordan (in December 2016).

The regional exchange initiative was implemented in the context of the MENA-DELP project “Middle East and Northern Africa –Desert Ecosystems and Livelihoods Development Project” funded by the World Bank and the Global Environment Facility (GEF). This is an umbrella project of facilitating knowledge exchange between 6 national investment projects in five partner countries (Algeria, Egypt, Jordan, Morocco and Tunisia) in the MENA region, aiming at a better understanding of the linkages between desert ecosystem services and desert livelihoods for an informed decision-making.

The thematic workshop was an opportunity to share the methodology and the preliminary results of an ongoing regional study on approaches to be implemented for sustainable management of forest ecosystems in the arid areas of MENA region to face climate change based on the application of vulnerability analysis and estimation of Carbon sequestration potential.

It was also a meeting of scientific and technical partners to share experiences regarding the management of forest ecosystems in arid, semi-arid and desert zones in the MENA region.

In order to achieve synergy effects the study tour and the workshop was also including the project focal points of the 12 countries participating in the BRICKS project. The project “Building Resilience through Innovation,

Communication and Knowledge Services (BRICKS)” aims to support the SAWAP program by facilitating the identification of innovations at the regional and global levels through efficient knowledge management and monitoring-evaluation and their promotion through targeted communication. The World Bank / GEF Sahel and West Africa Program (SAWAP) is designed to enhance an integrated natural resource management for sustainable and climate-resilient development in 12 countries in sub-Sahara Africa (Benin, Burkina Faso, Chad, Ethiopia, Ghana, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan, and Togo) in the context of the Great Green Wall Initiative.

Description of the tool or method	North African livelihoods based vulnerability analysis approach has been discussed and presented and will be applied to identify the most vulnerable livelihoods in the region
Timeline	1- Online regional forum 2- Thematic regional workshop : 22 & 23 November 2015 3- Study tour : 24, 25, 26 & 27 November 2015
Target audience and beneficiaries	The target audience of these activities was composed by 2 or 3 representatives for each of the 17 countries involved in the MENA-DELP and BRICKS projects, for each country the target was to have one representative of the following three groups: <ul style="list-style-type: none">▪ Project Manager;▪ Science, academic research;▪ Civil society
Outcomes	A comprehensive report on the subject has been compiled and short notes on the different themes of the online conference have been distributed. A tool to estimate the potential for carbon sequestration has been developed and applied. A project document to support sustainable, climate resilient and low carbon management of tree covered areas in drylands is in the process of being developed.
Implementing partners	For the organization of these two activities, the selection of sites to visit and the technical content of the working sessions, was supported by many partners,

namely:

Leader

- OSS : Sahara & Sahel Observatory

Collaborators

- CILSS : Permanent Interstates Committee for Drought Control in the Sahel
- IUCN : International Union For conservation of Nature
- World Bank

Partners

- NCARE : National Center for Agricultural Research and Extension
- RSCN : Royal Society for The Conservation of Nature
- Hashemite Fund : Hashemite fund for development of Jordan Badia
- ICARDA : International Center for Agricultural Research in the Dry Areas

Good practice and lessons learned

Regarding adaptation planning

During the study tour a small projects sites in Jordan have been visited promoting alternative income generation activities such as electricity generation to protect the overexploitation of the forests and thereby also increasing their resilience to climate change such as solar panels for local households, textile production and pottery Micro projects Fundings (electricity by solar panels).

A collection of base practices has been set up as a decision support tool for planning adaptation activities in the forest sector in drylands.

As an outcome of the knowledge exchange process a working group has been established, which is currently developing a project document.

Regarding knowledge-sharing and training modalities:

It is always inspiring for the participants of knowledge exchange programmes to visit each other in Field trips. The MENADELP programme regularly organizes study tours between the five participating countries on subject of interest for the project (Desert livelihood systems).

It was very challenging to encourage participation at the online discussion forum. The lesson learned is that for making an online Forum work, active management of the Forum is needed including targeted invitation of experts to stimulate the exchange. For the collection of knowledge other formats such as surveys might be more appropriate.

Further information

- More on the MENA-DELP project: <http://www.oss-online.org/mena-delp/index.php/en/>
- More on the E-Forum: Forests ecosystems management approaches to face climate change (MENA region): <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>
- Workshop report: regional thematic workshop sustainable forest ecosystems management in arid and semi-arid areas the case of jordanian forests 16 to 17 november 2015 in Jordan: http://www.oss-online.org/mena-delp/phocadownload/amman_workshop_report_2015.pdf
- OSS website: <http://www.oss-online.org/>

13. Sharing knowledge on best practices: publications and sensitization on climate change, and installation of 21 automatic weather stations in 7 seven countries and realization of 7 maps at national scale on land use and vegetation under the REPSAHEL project: Enhancing the resilience of the Sahelian population to environmental changes

Sahara and Sahel Observatory (OSS)

Countries	Adaptation element	Activities
Burkina Faso; Chad; Mali; Mauritania; Nigeria; Senegal	communication and outreach/awareness; socio economic data and information; education and training; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building; Other

Thematic areas	Key words
Ecosystems; Human settlements	Resilience, vulnerability, adaptation, climate change, population, environment

Description of the activities The overall aim of the REPSAHEL project is: Equipping West African countries and sub-regional organizations with environmental monitoring and observation tools to support their sustainable development strategies, by emphasizing agro-sylvo-pastoral policies and natural resource management programs.

The Expected impact is to Enhancing the conditions of the socio-economic existence of West African populations through strengthening their resilience to environmental changes, especially climate changes, and a better management of natural resources. For 2015, the activities related to adaptation were:

- Installation of 9 automatic weather stations to gather data in observatories to monitor climate data
- Realization of maps (1:200 000) on land use for Niger, Nigeria, Senegal, Mauritania and Burkina Faso and on vegetation for Chad and Mali
- Organization of 7 sensitization workshop on environmental changes, especially Climate Change at local scale
- Organization of 7 Environmental education sessions for scholars at local scale
- Organization of 7 sensitization workshop for technicians and decision makers at national scale
- Elaboration of publication “local know how” in Mauritania, Senegal, Niger and Chad.

Description of the tool or method	Maps and weather stations will be used to identify and to follow the vulnerability zones. The products will be submitted to decision makers to better take the strategies.
Timeline	January – August 2015
Target audience and beneficiaries	Communities at local scale, decision-makers, technicians
Outcomes	The communities are sensitized, trained and equipped with appropriate tools to be part of the decision making processes and as well in assessment of ecosystem and population vulnerability to environmental changes.
Implementing partners	<p>Leader: Sahara and Sahel Observatory</p> <p>Financial partner: SDC - Switzerland</p> <p>Partners:</p> <p>Ministry of Environment and sustainable Development – Mauritania</p> <p>Federal Ministry of Environment – Nigeria</p> <p>Ministry of Environment and Fishing – Chad</p> <p>Centre de Suivi Ecologique – Senegal</p> <p>Centre de surveillance Ecologique et environnemental – Niger</p> <p>Agence de l’Environnement et du Développement Durable – Mali</p> <p>Conseil National de l’Environnement et du Développement Durable – Burkina Faso</p>
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>The local populations and scholars in the observatories were sensitized on the climate change problems. They will be able to be associated in the decision making at local level.</p>

A second phase of the project was elaborated to take in account the needs of populations regarding the adaptation strategies.

Regarding knowledge-sharing and training modalities:

The good experience showed that the environmental education was very useful. The sessions were a success story and we plan to elaborate a modules for that in the next step. The studies on the local know how will be exploited to be shared and disseminated between the countries.

We felt the need of policy makers and populations to be informed about the challenges and ways to combat climate changes. They understood that adaptation is the key to cope Climate Change.

Further information

- More on REPSAHEL project: www.oss-online.org/rep-sahel
- OSS website: <http://www.oss-online.org/>

14. Regional Exchange Forum on adaptation and mitigation to Climate Change (June, 2015), regional training workshop on the ex-act tool (EX-ANTE Carbon-Balance Tool) and regional Workshop on Monitoring & Evaluation and Geographical Information Systems (15 - 17 February 2015 Addis Abeba, Ethiopia)
 Sahara and Sahel Observatory (OSS)

Countries	Adaptation element	Activities
Benin; Burkina Faso; Ethiopia; Ghana; Mauritania; Mali; Nigeria; Senegal; Chad; Sudan; Togo	adaptation planning and practices; communication and outreach/awareness; institutional arrangements; monitoring and evaluation; socio economic data and information; capacity building; education and training; impact assessment; knowledge management; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building

Thematic areas	Key words
Ecosystems; Water resources; Human health; Human settlements; Linking local and national adaptation planning	Geoportal, Geographic Information System, remote sensing, Monitoring&Evaluation, EX-ACT tool, GHG emission, carbon sequestration, climate change, population activities, communication, Knowledge

Description of the activities 1. The thematic workshop aim of organizing a training session was to create a better understanding of the fact that maintaining organic carbon-rich soils, restoring and improving degraded agricultural lands could play a very important role in addressing the three-fold challenge of food security, adaptation of food systems and people to climate change, and the mitigation of anthropogenic emissions. In the context of the planning and monitoring and evaluation of the implementation of the SAWAP national project it is important to assure that the sustainable development activities undertaken are both well adapted to climate change and contribute to increased carbon sequestration.

The regional meeting was divided into two parts. The first day was dedicated to an information exchange on good practices in adaptation to climate change and integration of the SAWAP project in the national climate change strategies. To facilitate the discussion a questionnaire was send to the participants. The analysis of the questionnaire was presented and discussed during the workshop.

2. The two following days were dedicated to the application of the EX-ACT tool (EX-ante Carbon-balance Tool) developed in 2010 and tested on several pilot studies, is now the standard in terms of carbon-balance estimation and has been adopted by international organizations and investors in their agriculture and forestry development projects.

3. The Regional Workshop on Monitoring & Evaluation (M&E) and Geographical Information Systems, was undertaken from 15 - 17 February, in 2015 Addis Abeba (Ethiopia). The objective of this workshop was to develop a standardised set of Indicators to monitor the performance and impact of the 12 SAWAP projects. For consistent monitoring and implementation of these programs, a SAWAP conference encompassing BRICKS advisory committee has been set up. This conference is a multi-institutional orientation organ that ensures a consistent, harmonized and effective implementation of these programs for the achievement of their objectives and for ensuring a complementarity of actions between them. This second SAWAP conference comes in the wake of the first, held in Ouagadougou in March 2014 and was held in Addis Ababa, in Ethiopia, as initially announced. The choice of Ethiopia for this second SAWAP conference is firstly based on the decision taken in Ouagadougou in March 2014 by BRICKS Steering Committee to alternate the location of the conference between West-African and East-African countries; and secondly, because Ethiopia has recently launched a new film highlighting successes of his sustainable land management program. This is an opportunity for other SAWAP project teams to meet the Ethiopian team and thus to directly visit these success on the field.

4. Regional Training for improved understanding and application of GEF tracking tools 28 September - 2 October 2015 Dakar (Senegal). The training presented the GEF tracking tool for improved integration of the indicators in the SAWAP M&E. The training workshop was structured around a series of theoretical presentations, practical work and experiences and best practices exchange sessions among the different participants of the national projects (BRICKS and MENA-DELP). The sessions were led by the PMU of both projects. Presentations were made via teleconference from Washington and ensured by the GEF experts. The workshop took place over five days and is mainly focused on the following points:

- Basic notions and concepts of M&E
- Strategies implemented by MENA-DELP and BRICKS for the operationalization of the M&E of MENA-DEL and SAWAP performances;

- Introduction on the GEF M&E tools (Definition: why, when and how?);
- Detailed presentation of the three GEF tracking tools (biodiversity, land degradation and international waters);
- Exchange of experiences among countries used to the GEF Tracking Tools;
- Practical work on using the GEF tracking tools according to each project's theme;
- Exchange on the different difficulties encountered by the national projects in feeding GEF tracking tools (information collection, national partnerships tools feeding, lack of information, institutional changes, etc.);
- Introduction to risk assessment methods in relation to M&E activities;
- Elaboration of recommendations and development of a road map for the rest of the projects' activities.

5. National workshops are undertaken on demand to strengthen the capacity of the SAWAP project implementation unit to monitor and evaluate the project with the help of GIS tools and remote sensing.

Description of the tool or method The M&E handbook (in French) has been developed as a reference document in the discussion on the development of a standard set of indicators for the 12 SAWAP national projects.

Better institutional governance and an informed decision based on evidence are key factors for the success of natural resources management strategies. The changes taking place at the level of planning and adoption of better land use practices require a sound knowledge platform. The Geoportail of the BRICKS project aims to respond to this need.

The EX-ACT Tool (EX-ANTE Carbon-Balance Tool) which is based on Microsoft Excel sheets. The results are showed in the Ms Excel sheets through figures, graphics and comments. The results are directly useful for decision makers, who may develop climate change strategies and plan adaptation activities, since it is important to assure that climate change adaptation activities have a positive negative balance and increase the sequestration of carbon.

Timeline

- 15 - 17 February workshop on M&E of SAWAP projects
- 15 June 2015: Exchange Forum on adaptation and mitigation to Climate

Change;

- 16-17 June 2015: Training workshop on the ex-act tool (EX-ANTE Carbon-Balance Tool);
- 28 September - 2 October 2015 Dakar (Senegal): Training GEF tracking tool

Target audience and beneficiaries

The trainings are aimed at the SAWAP and BRICKS projects' staff units, namely:

- Monitoring & evaluation experts;
- Staff of the BRICKS entities;
- Sub-regional institutions and technical support entities (FAO, UNCCD, and AGRHYMET, etc.) were invited to take part in the workshop activities according to their experience.

Outcomes

Development of a harmonized set of indicators for the M&E of the performance and impact of the 12 SAWAP project

- Launching of a Geoportal, giving access to geo-referenced data of the region and providing access to all project documents
- Understand the general concept of climate change;
- Ensure that project activities are in line with national climate change strategies and outcomes are communicated to climate change focal point
- Understand the importance to assure that adaptation activities also take into consideration other challenges such as the necessity to mitigate to climate change and assure food security
- Explain the carbon cycle and the concept of a carbon-balance and underline the triple win aspect of maintaining organic carbon-rich soils, restoring and improving degraded agricultural lands in addressing the three-fold challenge of food security, adaptation of food systems and people to climate change, and the mitigation of anthropogenic emissions.;
- Apply the EX-ACT tool with a simple to complex application;
- Analyze and use the EX-ACT results;
- Participants exchanged experiences in terms of adaptation and mitigation to climate change, carbon sequestration, reduction of GHG emissions;
- Good practices and lessons learnt synthesized in a report.

Implementing partners

For the organization this activity, the training sessions and the forum was supported by many partners, namely:

Leader:

- OSS : Sahara & Sahel Observatory

Collaborators:

- CILSS : Permanent Interstates Committee for Drought Control in the Sahel
- IUCN : International Union For conservation of Nature
- World Bank

Partners:

- FAO: Food and Agricultural Organization
- IRD: Institut de recherche pour le développement
- Regional Centre AGRHYMET

Good practice and lessons learned **Regarding adaptation planning**

Various activities planning in different areas of actions, in order to ensure better carbon sequestration.

The understand of the general concept of climate change;

- The understanding of the carbon cycle and the concept of a carbon-balance;
- Practical use and application of the EX-ACT tool with a simple to complex examples, and the analysis of the results;
- Evaluation of project's activities' impact, the relate GHG emission and carbon sequestration before implementation.

Regarding knowledge-sharing and training modalities:

The exchange mechanism established by the BRICKS project works well, because besides the establishment of an online portal it includes regular workshops and training sessions of all project members.

**Further
information**

- BRICKS Geoportal is a centralized platform for publishing and sharing of various resources and metadata via the Internet:
<http://149.202.139.155:8080/geobricks/srv/eng/main.home>
- Information Broche about M&E activities of the BRICKS project:
<http://www.oss-online.org/sites/default/files/fichier/lvr-Bricks.pdf>
- For more information on the EXACT tool:
www.fao.org/tc/exact
- OSS website: <http://www.oss-online.org/>

15. Global Exchange Workshop on Adaptation for Food Security and Resilience
 United Nations Development Programme (UNDP) – Africa Regional Center

Countries	Adaptation element	Activities
Belize; Burkina Faso; Cambodia; Cabo Verde; Haiti; Malawi; Morocco; Mozambique; Niger; Sudan; United Republic of Tanzania	communication and outreach/awareness; capacity building; knowledge management	Meeting workshop; Knowledge product

Thematic areas	Key words
Ecosystems; Water resources; Linking local and national adaptation planning	

Description of the activities The aim of this workshop was to bring together experts and practitioners from eleven countries across the Africa, Asia and Latin America region to share their experiences and lessons learned on a variety of adaptation-related issues. The workshop was organized around six thematic issues: Climate-related information and services; Innovations in water, soil, energy and crop management technologies and approaches; Strengthening policy and institutions to better integrate agriculture, food security and climate change; Financing measures for resilience; Gender-sensitive approaches; and Measuring impact of adaptation on development outcomes. Every participating country shared at least one innovative experience from their project related to these themes, and participants discussed the various processes, challenges and success factors that would allow others to apply the same approach in their countries. Following from the workshop, selected case studies were developed which documented the innovative approach presented during the workshop.

Timeline Workshop was held from 2-5 March, 2015

Target audience and beneficiaries Practitioners, policy and decision-makers in participating countries
 Knowledge products emerging from the workshop targeted practitioners outside of the workshop, as well as other partners and donors

Outcomes

- Establish a cohesive community of practice among the national projects by providing an opportunity for the national teams to meet and get to know

each other for future sharing/learning

- Support project teams to share insights about their experience with the projects, both successes and challenges, which may be useful for other teams
- Document concrete lessons learned, results and successes for defined knowledge products.

Implementing partners Co-organizers: Canada-UNDP Climate Change Adaptation Facility; Africa Climate Adaptation and Food Security project; Conseil National de L'Environnement pour un Développement Durable, Niger

Funders: Government of Canada; Government of Japan, Global Environment Facility

Good practice and lessons learned **Regarding adaptation planning**

Specific experiences related to adaptation planning (at national and local level) were shared from the following countries, with a short summary below:

- Burkina Faso: National adaptation plan (NAP) - Kouka Ouedraogo, TICAD V projects Coordinator, CONEDD, Burkina Faso

The Burkina Faso National Adaptation Plan, or NAP, is a medium and long term plan drawing on progress made under the NAPA projects implemented from 2009 to 2013. It encompasses seven sectors considered as the most vulnerable to climate change. It was developed by a multidisciplinary team composed of sectoral experts, assisted by two members of the civil society, under the coordination of a senior consultant. The NAP was validated on February 17, 2014, and will soon be sent to the Ministerial Council. Then, a campaign to generate ownership will target other stakeholders. Mobilizing political, technical and financial support will be essential for the implementation of the NAP, estimated at \$8 billion USD.

- Malawi: National climate investment plan – Sothini Nyirenda, UNDP Malawi

The National climate investment plan (NCIP) seeks to guide climate change investments in Malawi. The NCIP was developed to ensure that key priority areas are sufficiently supported with resources, are well-coordinated and timely. It provides a framework for monitoring, reporting and accounting for the resources allocated to the sectors for climate change, by providing strategic

priorities and targets. The four thematic areas of the NCIP are: adaptation; mitigation; research, technology development and transfer; and capacity development. The adaptation area focuses on integrated watershed management, improving climate change community resilience through agricultural production, climate change proofing for infrastructure development, and enhancing disaster risks management. The total cost of the NCIP is \$954.5 million US for six years, of which adaptation interventions represent 48.20%. The NCIP was successfully launched in April 2014 and provides an entry point to all the stakeholders interested in investing in climate change activities in Malawi.

- Haiti: GIS-based environmental management plan to inform resilience-focused investments across sectors – Jean Ked Neptune, Ministry of Environment of South Department, Haiti

“Plan de co-gestion” is a land use management plan that seeks to combine resources from different watershed actors to improve the socio-economic conditions of the population in the short and medium terms. It is built on a GIS map which provides decision makers with reliable data for informed decisions. The maps illustrate different land use types with respect to their potential proposing areas for intensified agriculture, agro-forestry, ecological restoration, natural regeneration, coastal zones, conservation and urban expansion. It also shows that 85% of the area of the South department is in “conflict” between different uses, which are important to regulate in order to facilitate adaptation. To produce this map, an inventory was carried out of all existing information within the department, along with biophysical and socioeconomic studies. This information was then overlaid with other GIS data to illustrate land use. The challenges faced are the high cost of GIS software and related materials.

- Morocco: Regional adaptation planning - Amal Nadim, UNDP Morocco

The Climate Change Policy of Morocco (PCCM) is structured around strategic sectoral issues, which includes adaptation interventions in the areas of water, agriculture, fisheries, and biodiversity conservation. Four integrated adaptation pilot projects have been implemented under this policy, one each in the sector of agriculture, energy, flood risks management and conservation of water resources. Some activities carried out under the ACA project are: the integration of adaptation in municipal planning; the mobilization of actors and institutions concerned; and the creation of oases networks.

- Tanzania: National to local level planning and budgeting – Stephen Mariki, Vice President's Office Tanzania

With support from the ACA project, Tanzania is further integrating climate change into its national and sub-national planning and budgeting processes. The approach taken to achieve this aim was to raise awareness and to engage key decision makers responsible for setting priorities for investment, especially the Minister of Finance and Planning, the Prime Minister's Office, and the President's Office. The project also developed knowledge products (e.g. climate information toolkit for farmers) to help understand climate change at the local level. It also identified entry points and built the capacity of local and sub-national authorities to mainstream climate change into planning and budgeting processes. The challenges faced include an absence of a clear guideline to allocate resources for climate change, lack of resources to mainstream climate change, especially at the local level, and limited capacity in climate change of most of the personnel of the ministries and local government authorities. To address some of these challenges the project worked with the Ministry of Finance to develop guidelines specifying how climate change should be incorporated in national and local budget priorities.

- Mozambique: Local adaptation planning – Lolita Hilario, UNDP Mozambique

The ACA project supported the process of elaborating local adaptation plans, which involves four elements: (1) climate vulnerability assessment and capacity building of the communities to deal with climate change; (2) integration of climate change into the local development plan and different sectors; (3) development of the implementation strategy; and 4) reporting, monitoring and review. Challenges to implement this plan include a lack of capacity at the local level, as the local adaptation plan should be developed by the local communities. This issue is addressed by building the capacity of the local community to use the methodological guideline. There is also limited participation of women in the process, and a challenge in selection of districts to develop local adaptation plan as in Mozambique there are 182 districts. Finally, climate adaptation is not a priority for allocation of funding by the Ministry of Finance. The next step is to move towards one integrated local development plan that fully integrates climate change priorities instead of having multiple, separate climate adaptation and sectoral plans.

- Niger: Integrating climate change into local development plan – Idrissa Mamoudou, Technical Advisor, CNEDD

Niger has elaborated national and municipal guidelines, yet even after revision has failed to incorporate climate change. An annex to the guidelines incorporating climate change was later developed. The guidelines enumerates seven phases for the elaboration of a municipal plan: (1) preparatory phase - the service provider and the municipality discuss means and tools to be used to collect data; (2) diagnostic analysis - indicates how to value climate information in municipal planning; (3) formulation phase - the municipality shares its vision for the next 10-15 years; (4) development of strategic orientations; (5) adoption of the plan; (6) evaluation of compliance; (7) dissemination and evaluation of the plan after five years. To ensure that climate change becomes a reality within this process, CNEDD under the NAPA/CCAF project further strengthened capacity of technical services at the local level.

Some selected lessons learned from the various experiences:

- In Burkina Faso,
 - the effectiveness of a sector wide approach for the formulation of a long term adaptation strategy stemmed from the establishment of a participatory mechanism, which includes actors from the public and private sectors and the civil society. This participatory approach helped not only to forge ownership, but also put climate change in the national political agenda beyond the technical level.

- In Haiti, the following lessons learned were documented:
 - The relevance of the data to be collected: The data to be collected must be selected by taking into account the sectoral mandates of different departmental directorates. The DDS/MoE team has made great efforts in collecting data, some of which were not a priority nor were needed by the departmental directorates. Thus, the efficiency (both time and resources) in the data collection could be improved if the questionnaires produced were in line with the topics of intervention of the various departmental directorates (Agriculture, Planning, Tourism, Education, Health, etc.).
 - Prioritization of data according to its obsolescence: The collection of data was made in a single data collection campaign. Thus, the DDS/MoE collected data that two years later were already obsolete due to changes /developments observed in the target areas. For future data collection campaigns, data to be collected should be prioritized according to their immediate use by the various departmental directorates.
 - Updating of data: It is important to set up a system for updating collected data either through watershed management committees or departmental

- directorates concerned.
- Stakeholder involvement: it is extremely important to involve all actors of the watershed – e.g city hall, departmental directorates, community-based organizations (CBOs), etc. right from the beginning of the intervention. If this occurs, the validation of the maps and implementation of the joint management plans produced will be easier in the future.
 - Land cover map: It is not possible to analyse changes in land use from the data collected from aerial photos. Hence, it is better to have aerial photos over several periods in order to obtain a picture of a five to ten-year period of land use in the past, to arrive at the current use
- In Tanzania, the following lessons were documented:
- Reduced conflicts and environmental degradation through support on adaptation interventions i.e water resources management which reduced livestock keepers/farmers conflicts resulting from water resources use;
 - Increasing ownership of CC interventions from communities where they were involved in the planning process using the Opportunities and Obstacles to Development tool;
 - Effective community engagement results in development of own institutions for resources management such as Water User Committees/Associations that has shown to have a positive impact on project sustainability with communities' contributions for operational costs.

Regarding knowledge-sharing and training modalities:

After experience with several other modalities of sharing experiences (e.g. email listserves, websites, social media), it is clear that in-person workshop is the most effective. Participants had the opportunity to have discussions around relevant themes, and also create relationships with other project teams that is difficult to do using only email. These relationships lasted beyond the workshop, where several project countries interacted directly to share experience. It was clearly worth the investment in bringing together participants.

With regards to the information sharing that occurred during the workshop, having participants speak themselves and lead discussions themselves was also beneficial, and allowed them to focus on issues that were common across countries.

It is important that the presenters are clear on the structure of the discussions and the information they are expected to present. Providing a templates for the ppt is one way to ensure the presentations are focused.

Small group discussions and open plenaries, as well as “social” time for participants to talk with eachother, allow participants to go beyond the information presented, and ask the specific questions that will help them learn and apply new knowledge to their context.

**Further
information**

- More information on the event, available here:
<http://undp-alm.org/projects/ccaf/meetings-and-workshops>
- Case studies developed based on the workshop discussions, available here (under case studies):
<http://undp-alm.org/projects/ccaf/reports-and-publications>
- UNDP website: <http://www.undp.org/>

16. Country Project Managers Workshop
 United Nations Development Programme (UNDP) – Programme on Climate Information for Resilient Development in Africa (CIRDA)

Countries	Adaptation element	Activities
Benin; Burkina Faso; Liberia; Sierra Leone; Sao Tome and Principe; Ethiopia; Gambia; Uganda; United Republic of Tanzania; Malawi; Zambia	adaptation planning and practices; climate observations; financial support; institutional arrangements; monitoring and evaluation; technology support; capacity building; impact assessment; knowledge management	Meeting workshop

Thematic areas	Key words
Ecosystems; Human settlements; Human health; Water resources; Linking local and national adaptation planning	Knowledge management, adaptation, climate information, early warning, public private partnerships

Description of the activities The workshop brought together Climate Information for Resilient Development in Africa (CIRDA) country project managers, technical advisories, meteorologists and hydrologists, and experts on public-private partnerships, communications and development to explore innovative approaches and new technologies to strengthen and sustain climate information and early warning systems in Africa. This workshop was the first time the relevant officials from the 11 CIRDA countries had been brought together to share status reports, meet individually (as countries) with CIRDA experts, and outline their challenges and priorities for the coming year. It, in turn presented an opportunity for national project managers to discuss recent challenges faced during the implementation of national climate information and early warning projects as well as successful best practices. The workshop also happened to coincide with the near final result of the process for a Long-Term Agreement (LTA) on procurement of full service weather systems. Staff from the Procurement Support Office (PSO) in Copenhagen came to explain the LTA process and how it could be used by countries.

Description of the tool or method Group activities, country presentations and expert training. The event also provided ample opportunity for one on one support by experts in meteorology, hydrology, technology and private sector engagement through “country clinics”.

Timeline	25-27 August, 2015.
Target audience and beneficiaries	Project managers and implementing partners of the national climate information early warning projects in Benin, Burkina Faso, Liberia, Sierra Leone, Sao Tome and Príncipe, Ethiopia, the Gambia, Uganda, Tanzania, Malawi and Zambia.
Outcomes	<p>The networking and sharing sessions by the country representatives allowed for the open sharing of ideas. Some of the success stories in Sao Tome, Benin, Tanzania and Zambia were good examples of what can be achieved in a short space of time. Country representatives used the opportunities to connect and share ideas with their counter parts and the CIRDA technical experts during the panel discussions. The details of these discussions are captured in the minutes.</p> <p>The country clinics allowed for more direct interaction with the country representatives. An ongoing process but a significant step forward in the shared understanding of CIRDA objectives and the practical benefits of the LTA as next steps toward engaging countries in consideration of PPPs and business partnerships. In terms of the private sector component five countries asked for help in devising private sector strategies and business plans. These issues will become of increasing relevance as procurements move ahead and the basis for discussion of tailored business products becomes real.</p>
Implementing partners	National Hydro Meteorological Services (NHMSs) and national counterparts of CIRDA partner countries (Benin, Burkina Faso, Liberia, Sierra Leone, Sao Tome and Príncipe, Ethiopia, the Gambia, Uganda, Tanzania, Malawi and Zambia). The project is financed by Global Environment Facility – Least Developed Countries Fund (GEF-LDCF).
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>Burkina Faso presented their success in establishing a relationship through a cell phone provider to communicate climate information as well as to collect it through rain fade technology. The national projects also demonstrated their various successes in reaching and identifying the needs of vulnerable communities.</p> <p>Trust building is essential particularly in identifying needs of the end users of</p>

climate information.

Regarding knowledge-sharing and training modalities:

The workshop allowed experts to detail their efforts and express their challenges. This allowed for them to identify what could be learned and experts where able to hone in on shared challenges and themes.

Space needs to be provided for project implementers to communicate and share the knowledge and best practices they have gained. Support can then be tailored thus assuring that it is relevant and practical to local needs.

Further information

- More information on CIRDA project: <http://www.undp-alm.org/projects/cirda/meetings-and-workshops>;
- Notes on the workshop are available here: http://www.undp-alm.org/sites/default/files/uploaded-images/082515_082715_notes_workshop.pdf
- UNDP website: <http://www.undp.org/>

17. Workshop “Creating Value Added Weather and Climate Services through Innovative Public Partnerships”

United Nations Development Programme (UNDP) – Programme on Climate Information for Resilient Development in Africa (CIRDA)

Countries	Adaptation element	Activities
Benin; Burkina Faso; Liberia; Sierra Leone; Sao Tome and Principe; Ethiopia; Gambia; Uganda; United Republic of Tanzania; Malawi; Zambia	adaptation planning and practices; climate observations; financial support; institutional arrangements; technology support; capacity building; education and training; stakeholder involvement	Meeting workshop

Thematic areas	Key words
Ecosystems; Human settlements; Human health; Water resources; Linking local and national adaptation planning	Adaptation, climate information, public private partnerships, national planning

Description of the activities The international workshop was directed at helping National Hydrological and Meteorological Services (NHMS) in Africa create value added weather and climate services by engaging with the private sector and developing innovative public private partnerships. Long term financial sustainability of national weather and climate was addressed through various presentations of best practices and introducing the various needs and opportunities of working with the private sector (from telecommunications to aviation and utilities). As governments deal with budget constraints on many fronts, limited budget resources are a challenge for NHMS in their attempts meet the information needs of local populations. The use of weather and climate information is essential for national planning and can be used to reduce loss of lives and property thus alleviating poverty and enhance economic competitiveness locally and internationally.

Description of the tool or method Presentations by more than 20 experts including representatives of weather equipment companies, cell phone companies, airlines, banks, insurance companies, and the IFC made clear that there are no shortage of exciting opportunities for combining modernized met services with business applications and possibly some revenue generation. However making it happen – fitting the pieces together in ways that meet the diverse needs and capacity of the CIRDA countries --will require dedication and commitment at the country

level, with supporting expertise and resources. Brain storming sessions through moderated group discussions proved to be particularly effective to break down complex challenges.

Timeline 3-5 March, 2015

Target audience and beneficiaries Directors of the National Meteorology and Hydrology Services (NHMS), NHMS Business Managers, relevant private sector representatives, CIRDA country managers, and other interested CIRDA partners.

Outcomes The workshop was a promising start; some necessary concrete steps were announced and action plans were prepared by the country participants. One key source of background information will be market studies to identify business needs and willingness to pay at the country and sector (e.g., airlines, banking, mining, tourism) level. At least one country announced that such a study had already been commissioned. The country teams were also given time to discuss and agree on next steps and most highlighted a desire to explore establishing public-private partnerships and an interest in partnering with telecoms. Several countries including the host Uganda expressed strong interest in adopting the free information services presented by an NGO, Human Network International. Zambia announced it will host the next workshop, tentatively scheduled for November, on issues related to communicating "the last mile" -- the challenge in providing weather information to those who need it.

Implementing partners UNDP implemented, GEF-LDCF Financed. WMO provides support as a board member of the Programme. National partners are the NHMS in each of the partner countries implementing the project.

Good practice and lessons learned **Regarding adaptation planning**

Allowing national counterparts ample time to analyze own national context and how lessons could be applied. Encouraged the creation of partnerships among end users of climate information, private sector and met agencies to meet adaptation challenges. This allowed participants to apply lessons learned and follow up on established objectives.

Regarding knowledge-sharing and training modalities:

It is important to bring the theory and the lessons learned to a national context to establish feasible next steps.

It is important to create trust among all participants and break down complex discussions through moderated group sessions on complex topics and how these apply at a national context.

Further information

- More on CIRDA project: <http://www.undp-alm.org/projects/cirda/meetings-and-workshops>;
- UNDP Climate Innovation Network, on Innovative public private partnerships for modernizing weather and climate: <http://www.undp-cirda.blogspot.com/2015/03/innovative-public-private-partnerships.html>;
- UNDP Climate Innovation Network, on Win-win solutions: linking climate information with the telecommunications sector: <http://www.undp-cirda.blogspot.com/2015/07/win-win-solutions-linking-climate.html>;
- UNDP Climate Innovation Network, on Building partnerships: <http://www.undp-cirda.blogspot.com/2015/04/building-partnerships-to-travel-last.html>;
- UNDP Climate Innovation Network, on Innovation: <http://www.undp-cirda.blogspot.com/2015/07/3-2-1-innovation.html>
- UNDP website: <http://www.undp.org/>

18. United States Trade and Development Agency (USTDA) training program on Information and Communication Technologies for Weather and Emergency Preparedness

United Nations Development Programme (UNDP) – Programme on Climate Information for Resilient Development in Africa (CIRDA)

Countries	Adaptation element	Activities
Benin; Burkina Faso; Liberia; Sierra Leone; Sao Tome and Principe; Ethiopia; Gambia; Uganda; United Republic of Tanzania; Malawi; Zambia	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; technology support; climate scenarios; education and training; knowledge management; science and research	Meeting workshop

Thematic areas	Key words
Ecosystems; Human settlements; Human health; Water resources; Linking local and national adaptation planning	Weather and climate information

Description of the activities The Sub-Saharan Africa training program was designed to introduce African delegates from CIRDA-supported countries to US products for climate information and high-impact weather early warning systems. The training was designed to support the adoption of modern technology aimed at advancing climate resilient development and adaptation. Visits to Earth Networks, USTDA, NOAA and the National Weather Service highlighted the workshop.

Description of the tool or method With new tools, technologies and concepts for weather and climate monitoring and the issuance of early warnings, the delegations are better able inform national adaptation plans. NHMS are empowering themselves to improve weather forecasts and models, and provide timely, accurate and reliable climate and weather information. Information is a cross-cutter. Providing better climate and weather information to decision makers and vulnerable communities can inform everything from land use and disease control (alerting), to infrastructure investment and climate-smart business development.

Timeline 27 September – 3 October 2015

Target audience and beneficiaries	National Meteorology and Hydrology Services (NHMS) decision makers were the primary target audience.
Outcomes	The training introduced NHMS decision makers from CIRDA-supported countries to new technologies, new meteorology observation methodologies, and new possibilities to connect with the private sector for the sustainable delivery of climate and weather services. The delegates connected with a leading US supplier of weather services, experts from NOAA and NWS, and trade moderators from the USTDA. They were also able to learn from each other's work during workshop presentations.
Implementing partners	USTDA, National Oceanic and Atmospheric Administration (NOAA), UNDP, National Meteorology and Hydrology Services (NHMS) from 11 Africa Least Developed Countries
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>The key lessons coming out of this were the need for both synoptic (larger scale) and local-scale weather monitoring systems. Local-scale systems, ideally deployed with Automatic Weather Stations, can provide high-quality granular information for smallholder farmers and decision makers, while synoptic systems working in complement serve to build out the climate record and improve broader-scale weather and climate monitoring. There was much discussion on WMO siting guidelines, integration of data from multiple stations (ie. AWS, synoptic, old stations, satellite), and diffusion of messages through mainstream media.</p>
Further information	<ul style="list-style-type: none"> ▪ Climate information and early warning systems training program, link to the event: http://www.eventbrite.com/e/climate-information-early-warning-systems-training-program-registration-18104857115 ▪ UNDP website: http://www.undp.org/

19. Climate Information for Resilient Development in Africa (CIRDA) communications program

United Nations Development Programme (UNDP) – Programme on Climate Information for Resilient Development in Africa (CIRDA)

Countries	Adaptation element	Activities
Benin; Burkina Faso; Liberia; Sierra Leone; Sao Tome and Principe; Ethiopia; Gambia; Uganda; United Republic of Tanzania; Malawi; Zambia	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; monitoring and evaluation; technology support; capacity building; education and training; knowledge management; science and research	Knowledge product
Thematic areas		Key words
Ecosystems; Water resources; Human health; Human settlements; Linking local and national adaptation planning		Weather and climate information, knowledge management

Description of the activities The CIRDA programme has implemented an integrated communications strategy to engage relevant stakeholders in the Climate Information, early warning systems and climate adaptation space. Activities include creation of blogs and case studies, media monitoring, regular newsletters, and sustained engagement across the community of practice.

Description of the tool or method Many of these knowledge products will aid in adaptation planning.

Timeline Throughout the year, with dedicated support beginning in June 2015.

Target audience and beneficiaries National Meteorology and Hydrology Services (NHMS) decision makers, donors, community of practice, vulnerable farmers, vulnerable communities, national policy decision makers, actors that can aid in the issuance of early alerts, meteorology, climatology and hydrology practitioners.

- Outcomes** The CIRDA communications programme achieved the following in 2015.
1. Creation of HTML-formatted newsletter, and expansion of newsletter distribution list to include relevant stakeholders. List expanded from about 20 to over 740 in 2015, and now stands at 1035.
 2. Creation of blogs, newsletter articles and web features to share knowledge, foster a culture of collaboration, strengthen both internal and external communication, and bring the latest news on climate information and early warning systems to relevant stakeholders. 14 blog posts were created in 2015. Average views per post is over 150, with top post receiving 400 hits. Three newsletters were shared in 2015, with average open rates over 30%. Blog posts are now regularly syndicated via reliefweb, climate L, yammer, LinkedIn and Slideshare (for longer issues briefs).
 3. Creation of a forum for CIRDA-supported projects.
 4. Weekly media monitoring and sharing of weekly reports on the latest news in climate adaptation, meteorology, technology, etc. in sub-Saharan Africa. 32 individual posts were shared during 2015 on the forum. <https://groups.google.com/forum/#!forum/cirda>
 5. Knowledge management. Both internal knowledge management via dropbox and weekly meetings, and external KM via the CIRDA website. All powerpoints from regional workshops were shared on the website. Videos from the Addis Ababa workshop were shared on YouTube.
 6. Engagement with country programmes to create regional factsheets fostered collaboration and internal KM.
 7. A draft communications strategy was completed and reviewed.

Implementing partners NHMS from 11 Africa LDCs.

Good practice and lessons learned **Regarding adaptation planning**
 Relevant information on adaptation planning related to CI/EWS were shared in these knowledge products.

The knowledge products themselves indicate some of these key lessons (see

further information).

Regarding knowledge-sharing and training modalities:

Good internal communication makes for good external communication. By empowering stakeholders we are fostering a culture of interchange and collaboration. Constant contact via the forum supports this interchange and allows for circular exchange of ideas, web products provide deeper dives to follow up from regional meetings, and expanded reach of the newsletter allows for increased understanding within the community of practice.

Lessons learned:

Empower your base and you will empower your message.

Share opening, frequently.

Further information

- Top blogs on knowledge products and their key lessons:
 - Implications of the Paris COP21 Agreement for Support of CI/EWS Project Objectives:

<http://undp-cirda.blogspot.com/2015/12/implications-of-paris-cop21-agreement.html>

- Valuing HydroMet Services:

<http://undp-cirda.blogspot.com/2015/12/valuing-hydromet-services.html>

- Applying Climate Information to Achieve the Sustainable Development Goals:

http://undp-cirda.blogspot.com/2015/11/applying-climate-information-to-achieve_24.html

- South-South Knowledge Sharing Mission Ignites New Opportunities for the Deployment of Modern Climate and Weather Information Systems

<http://undp-cirda.blogspot.com/2015/11/south-south-knowledge-sharing-mission.html>

- Why we need to save Africa's historical climate data

<http://undp-cirda.blogspot.com/2015/11/why-we-need-to-save-africas-historical.html>

- Website on CIRDA project: <http://www.undp-alm.org/projects/cirda>;
- Blog (Climate Innovations Network) on CIRDA: <http://www.undp-cirda.blogspot.com/>
- Newsletters:
 - December 2015:
<http://us11.campaign-archive1.com/?u=69dbb22958d728287793636ea&id=5d55a0619d>
 - November 2015: <http://eepurl.com/bH0EVL>
 - July 2015:
<http://us11.campaign-archive1.com/?u=69dbb22958d728287793636ea&id=212ea065e0>
- Map of CIRDA Impact:
https://www.google.com/maps/d/edit?mid=zrG_EEB91-b8.kTVzQporG8mw&usp=sharing
- UNDP website: <http://www.undp.org/>

20. Elaboration and pilot testing of the City Resilience Action Planning (CityRAP) Tool
 The United Nations Human Settlements Programme (UN-Habitat), Regional Office for Africa
 (ROAf)

Countries	Adaptation element	Activities
Mozambique; Malawi; Madagascar; Comoros	adaptation planning and practices; climate observations; communication and outreach/awareness; socio economic data and information; capacity building; education and training; knowledge management; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Human settlements; Water resources; Human health; Linking local and national adaptation planning	

Description of the activities The City Resilience Action Planning Tool—or City RAP Tool—is a set of training exercises and activities aimed at developing the capacity of local governments in sub-Saharan Africa to understand and plan actions that progressively build urban resilience and reduce urban risk.

The Tool specifically targets low capacity local governments of small to intermediate sized cities that have limited experience in urban risk reduction and resilience action planning, and that express demand in kick-starting the resilience action planning process. The accumulation of urban risk is particularly acute in such small to intermediate sized cities in the region. These are cities that are rapidly growing, house the majority of the urban population and began expanding from a minimal infrastructure and institutional base.

Furthermore, it is increasingly recognised today that the direct and indirect effects of climate change are being felt severely in urban areas as people, economic activities and assets continue concentrating in risky areas. Climate change is affecting a range of sectors from water supply, food systems, and health, the impact of which is distributed unequally across the population, with vulnerable groups potentially most adversely affected.

The City RAP has been conceived to fill an important gap in these rapidly growing urban and peri-urban areas. Existing tools are not appropriately targeted to low capacity local governments in sub-Saharan Africa, while at the same time tend to be dedicated to a narrow audience. The tools rely heavily on outside technical expertise, are too technical in nature, and rely on costly data collection methods, creating a disincentive to local governments in kick-starting a process of resilience planning. As a result, capacity retention among urban stakeholders, from local governments to communities, tends to remain low.

The City RAP Tool is being developed and tested by the United Nations Human Settlements Programme (UN-Habitat) in partnership with the Sub-Regional Technical Centre for Disaster Risk Management, Sustainability, and Urban Resilience (DiMSUR) with funding from the European Commission and the Global Facility for Disaster Reduction and Recovery. Five cities will have been targeted by December 2015, and testing will continue in 2016 mainly under the umbrella of the DiMSUR.

The DiMSUR, a non-profit institution, is concerned with mainstreaming local, national and regional capacities to reduce vulnerabilities and build resilience through the provision of action plans to aid and improve (1) disaster risk reduction (DDR), (2) climate change adaptation (CCA) and (3) urban resilience initiatives. The institution provides technical assistance and serves as an exchange platform of good practices, experiences and knowledge with regards to the three aforementioned areas.

Description of the tool or method The City RAP Tool seeks to put local governments and urban stakeholders in the driver's seat of urban resilience planning in order to ensure capacity retention and use. The Tool is designed so that local governments can adapt and implement it with minimal intervention from outside technical experts, using practical methods to leverage local knowledge for understanding and planning resilience strengthening activities. These include local government self-assessments, participatory risk mapping exercises, and cross-sectorial action planning—all which can be done by the local government engaging relevant stakeholders, most importantly, communities themselves.

The City RAP Tool is divided into three phases:

1. Phase 1 is an intensive training that has 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. Conducted by UN-Habitat and DiMSUR technical experts, the 2 to 3 day training is supported by easy-to-understand presentations, handouts and interactive material, such as videos and games. By the end of the Crash Course a Resilience Action Planning Team—or RAP Team—is established and enabled to lead the completion of the various activities in Phase 2 and 3.

2. The Phase 2 consists in 3 main assignments each having a duration of one week and aiming at using local knowledge to collect and analyze relevant information: the Institutional Self-Assessment, the Participatory Mapping at the Community Level, and the Discussion of Findings and Prioritization of Actions . The main sources of information are the local government and communities. All assignments from Phase 2 are led and coordinated by the RAP Team, formally assigned to this role by the local administration. All necessary material and instruments are provided and explained in detailed during Phase 1. UN-Habitat technical experts are available for tailored support as needed during Phase 2.

3. In Phase 3, the RAP Team leads a multi-sectorial Resilience Action Plan validation exercise among all relevant department staff of the local government, with the support of UN-Habitat and DiMSUR Technical Experts. The City Resilience Action Plan serves as a strategic implementation framework including short, medium and long term activities to guide municipal officials, communities and other partners to improve their city's resilience and reduce risks. In particular, the short term actions are supposed to be implementable with the available resources, the medium term actions with resources to be mobilized in the coming 2-3 years, while the long term actions constitute the vision of the city to build its resilience over a 10 years period.

Timeline

May 2014: First meeting of the DiMSUR executive board in Abuja. The most important achievement of the meeting was the approval of the Biannual Action Plan, outlining DiMSUR's three key objectives (1) being a recognized service-provider on DRR/M, climate change adaptation and urban resilience; (2) Deliver tailored capacity building, training and demonstration activities across the four countries; (3) Promote partnerships with technical, academic and research institutions of Southern Africa. The Biannual Action Plan included

among its key activities the elaboration of a tool with the goal for understanding and planning risk reduction and resilience building activities targeting rapidly growing municipalities.

April-June 2014:

- Initial desk reviews on existing tools and methodologies on urban risk reduction and resilience adapted to the Sub-Saharan African context conducted.
- Compilation of good practices and accumulated know-how from UN-Habitat and partners.

August-December 2014:

- Senior consultant systematizes information and conducts initial consultations for methodology development, proposing different approaches based on reviews previously conducted.
- Scoping mission conducted to Blantyre, Malawi to obtain feedback on the progress made and discuss proposed ways forward for methodology conclusion and testing.

February-May 2015:

- Consensus built over methodological details based on a 3-phased approach focusing on the leadership of the municipality/local government throughout the process.
- First drafting of the specific concepts and materials for the set of tools to operationalise methodology conducted; final decisions on packaging of the tool.

May-July 2015:

- Reviewing and consolidation of all methodological tools produced (self-assessment questionnaire and results matrix, participatory risk mapping and planning at city and community level, prioritization methodology)
- Conclusion of Beta Versions for testing of all essential materials, including the design of training material for Phase1, the Crash Course.
- Scoping and negotiation with candidate cities for the Pilot Testing; once Chókwè, Mozambique was chosen, organization of all detailed logistics with the Municipal Council with the backstopping of the Mayor.
- Collaboration with Oxfam Southern Africa to exchange experiences on

urban resilience approached and possible combination of elements from Oxfam’s Participatory Vulnerability Capacity Analysis (PVCA) community approach

- Final packaging under the “CityRAP” branding

August 2015:

- Delivery of the Pilot Testing in the City of Chokwe, Mozambique, from August 4th to September 7th 2015.

September-December 2015;

- Conclusion and consolidation of preliminary Resilience Action Plan from Pilot Testing in Chokwe.
- Compiling of feedback and elaboration of Lessons Learned Report for improving the tool methodology and material. Production of second version of the CityRAP Booklet
- Delivery of Pilot Testing in Zomba, Malawi and in Madagascar.
- Collection, compilation and analysis of feedback from all pilot testing from methodology and material improvement. Comparison of results obtained.

December 2015

- Consolidated version of the CityRAP Tool produced, validated by first round of testing.

January-June 2016

- CityRAP Tool and pilot results will be disseminated and discussed with a wide range of practitioners, experts and partners.
- Further testing should be conducted in Mozambique and other Lusophone countries in Africa; other targeted countries include: Union of Comoros, Zambia, Zimbabwe, Nigeria, Kenya, among others.

Target audience and beneficiaries

Cities which:

- are of small or intermediate size and present high urbanization rates;
- exhibit vulnerabilities and have a high risk factor with respect to natural disaster
- have low capacity, sub-par urban resilience and susceptibility to the adverse

- effects of environmental hazards
- are experiencing considerable short-comes in their capacity for disaster risk reduction and climate change adaptation.

Outcomes

In relation to the methodology development:

- One comprehensive booklet for guiding the three phases of the CityRAP process in three languages (English, Portuguese and French);
- Accessory materials for operationalizing the CityRAP Process;

In relation to the Pilot Test Conducted in Chókwè City:

- Participants were introduced to and familiarized with key concepts of risk management & resilience
- Participants were made aware of a wide range of concrete actions for strengthening resilience in their city
- Participants were familiarized with the process of the City RAP Tool
- A common city vision was created through a group initiative
- Preliminary participatory risk and prioritization maps were produced
- One preliminary City Resilience Action Plan for Chokwe produced, with 6 Priority Actions for Building Resilience in Chókwè agreed upon and 56 planned activities on short, medium and long term.

Implementing partners

Facilitators, administrators and benefactors:

- United Nations Human Settlements Programme (UN-Habitat)
- Sub-Regional Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience (DiMSUR)
- European Commission's Humanitarian Aid and Civil protection Department (ECHO) and the ACP-EU Natural DRR Programme (through the GFDRR) have provided financial support for elaboration of methodology and Piloting of the Tool

Other Partners:

- Oxford Committee for Famine Relief (OXFAM) has supported the development of the methodology and provided feedback throughout the process. It also has participated as an observer during the pilot testing.

The following institutions have been consulted in different occasions through the umbrella of the DiMSUR Executive Board:

- Instituto Nacional de Gestao de Calamidades (INGC) of Mozambique
- Department of Disaster Management Affairs (DODMA) of Malawi
- Bureau National De Gestion des Risques de Catastrophe (BNGRC) of Madagascar
- Centre des Opérations de Secour et de la Protection Civile (COSEP) of Comoros
- Disaster Risk Reduction Unit of the Southern Africa Development Community
- The University of Antannarivo (Madagascar)
- African Centre for Disaster Study of Northwest University (South Africa).

Good practice and lessons learned **Regarding adaptation planning**

Good practices:

- 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.
- The planning process led by the municipality with the participation of all the relevant local stakeholders increases the ownership of the plan, mainstreams adaptation in the different sectors and facilitates future implementation.
- Assigning clear responsibilities at the local level for building urban resilience and reinforcing adaptation to climate change is key for mainstreaming resilience into urban management.

Lessons learned:

- The level of ownership of the urban resilience and adaptation plan greatly depends on the leadership of the process by the municipal/local authorities. Therefore local ownership of the planning process is a necessary condition to effective implementation and constitutes a critical element of success.
- It is important to look for endogenous and locally adapted solutions for building urban resilience and effective adaptation capacity.
- The urban resilience and adaptation planning process should include all municipal departments, so that action planning becomes integrated, coherent, and a corporate responsibility of the municipality (not of just one department, as it is often the case). Urban adaptation and resilience building should be considered as integral parts of the local development agenda.

Planned Priority actions need to be broken down into specific short, mid and long term activities.

- The tool should be simple enough to be understood by the municipal staff, the local leadership and a large segment of the targeted population. However, experience shows that even a well-illustrated tool is often not read; at the moment, only on-the-job training can effectively make the difference in adaptation planning in small to intermediate cities of sub-Saharan Africa.
- Therefore, adequate adaptation tools need to be disseminated through cascading training of trainers at the different levels. In this way, national policies can be implemented locally and, vice-versa, successful local practices can positively influence national policy-making.
- The participatory mapping technique is a critical element to effective adaptation planning, since the map represents a tool in which all stakeholders can recognise their territory, interact and identify jointly viable and concrete solutions, based on the geographical reality.
- The three-colour matrix resulting from the self-assessment of the different municipal departments allows a quick visualisation of the areas that need improvement, facilitates decision-making as well as the discussions for prioritising actions to build urban resilience and adapt to the negative effects of climate change.

Regarding knowledge-sharing and training modalities:

Good practices:

- DiMSUR promotes the inter-country knowledge and information sharing on still rather unexplored themes such as urban resilience and adaptation in sub-Saharan Africa, by organising annual regional workshops and thanks to the web.
- Thanks to the CityRAP tool, key messages and concepts for urban resilience and adaptation planning are communicated using a simple and contextualized language, didactic materials and a variety of other means, such as games, movies, group discussions and practical exercises.
- The CityRAP Tool is being disseminated through the training of trainers (ToT), a methodology recently tested in the Union of Comoros and which will be replicated in several African countries throughout 2016. The ToT targets national/local practitioners and experts with the aim to forming national trainers capable of running the CityRAP process in the municipalities of their respective countries, therefore multiplying the reach of the tool and the knowledge for resilience planning.

Lessons learned:

- DiMSUR, with the support of UN-Habitat, tries to facilitate the establishment of networks of cities in the different countries facing similar climate-related risks so that can exchange information and best practices
- The adopted local participatory approach triggers by itself a fantastic knowledge-sharing dynamic, which is highly advantageous for identifying suitable and consensual solutions.

**Further
information**

- Detailed reports and documents on the CityRAP tool and the pilot testing in Chokwe is available under request.
- DiMSUR website: <http://www.dimsur.org/>
- UN-Habitat ROAf website: <http://unhabitat.org/roaf/>

21. Field Facts for Innovative Crop Insurance Design
West African Science Service Center on Climate Change and Adapted Land Use (WASCAL)

Countries	Adaptation element	Activities
Burkina Faso	adaptation planning and practices; communication and outreach/awareness; financial support; socio economic data and information; technology support; capacity building; climate scenarios; education and training; knowledge management; science and research; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Water resources; Linking local and national adaptation planning	Agriculture, Climate Hazard, Crop Insurance Design, Willingness to Participate

Description of the activities

1. Debriefing workshops with stakeholders
2. Households survey and Focus Group Discussion
3. Data analysis
4. Defining the best Climate scenarios for innovative crop insurance designing.

Description of the tool or method

Tool we are planning to disseminate is innovative crop insurance. The system of crop insurance is new in West Africa and so far based on climate indices (rainfall) and satellite data. This system has limits as it fails to take into account sensitive phases of the crops cycle, which may be more prone to climate and other environmental stresses.

The Innovative crop insurance WASCAL wishes to design and disseminate will consider sensitive information on crops from farmers and would reflect fairness and equity in the pricing decision.

Timeline

Investigations started from 2014 and the results are part of the WASCAL socio-economic team research Plan.

We hope to carry out a detail contingent valuation study (CVM) to estimate farmers willingness to pay (WTP) for Innovative crop insurance coverage. This

will help accessing the demand and commercial viability of Innovative crop insurance projects in the country.

Target audience and beneficiaries

Farmers, microfinance institutions and insurance companies

Outcomes

The results of the study are yet to be implemented. Key results are

1. Crop insurance should be design based on dry spell scenario (drought-based)
2. Main crops to be insured are Maize, sorghum and cotton
3. 86% of farmers would prefer insuring maize especially from flowering to harvesting
4. 34% would prefer to insure Sorghum during sowing and harvesting
5. 26% would prefer to insure cotton during sowing and harvesting
6. 51% will prefer in-kind contributions
7. while 49% will prefer cash payment

Implementing partners

- PlaNet Guarantee
- Ministry of agriculture of Burkina Faso
- Ministry of Budget
- Ministry of research
- Ministry of Agriculture

Good practice and lessons learned

Regarding adaptation planning

Good practices to be shared and disseminated are the use of innovative crop insurance to manage agricultural risk.

The challenge that will face the adoption of Innovative crop insurance is the lack of capital

To overcome this challenge the concerned stakeholders (decisions makers, NGO, farmers organizations and insurance companies) should work closely and come with relevant solutions to help farmers insure they crops.

Regarding knowledge-sharing and training modalities:

We wish to convince farmers to insure their crops and decision makers to support farmers. The following activities are planned to achieve the objective.

1. Organize workshops with stakeholders (farmers, Ministry of agriculture and livestock, finance companies) to present the benefits of Innovative crop insurance.
2. Identify a group of farmers as leader
3. Advise farmers to take the lead and disseminate Innovative crop insurance through good practices
4. Convince and encourage decision makers, NGOs, finance and insurance companies to support farmers with credit for the implementation of Innovative crop insurance.

Lesson learned: allowing farmers to choose which type of crop insurance coverage is best suited to their local realities.

Further information

- WASCAL website: www.wascal.org

22. Rainfall Variability Adaptation strategies: An Ex-Ante Assessment of Supplemental Irrigation from Farm Ponds in Southern Burkina Faso.
 West African Science Service Center on Climate Change and Adapted Land Use (WASCAL)

Countries	Adaptation element	Activities
Burkina Faso	adaptation planning and practices; communication and outreach/awareness; financial support; socio economic data and information; technology support; capacity building; education and training; impact assessment; knowledge management; science and research; stakeholder involvement	Meeting workshop; Knowledge product

Thematic areas

Water resources

Key words

Adaptation strategies, rainfall variability, risk management, farm ponds, Burkina Faso.

Description of the activities

1. Households survey and Focus Group Discussion
2. Tool designing to test the cost effectiveness of farm ponds
3. Test of cost effectiveness of farm ponds

Description of the tool or method

Tools we are planning to disseminate are farm ponds. Farm ponds are micro basins of about 300 cu m. Each farmer has to dig farm pond close to his field to collect the runoff water during the rainy season. The water stocked in farm pond will be used to irrigate crops during long dry spells.

Timeline

Investigations started from 2013 and the results are part of the WASCAL socio-economic team research Plan.

Next steps will be the validation and the dissemination of the results. Farm ponds will be also tested in two other sites of WASCAL. The overall objective is to disseminate the tool throughout the Economic Community of West African States (ECOWAS) Countries.

Target audience and beneficiaries

Farmers

Outcomes

The results of the study are yet to be implemented. Key results are

1. Farm ponds will increase households income by 5% during years with erratic rainfall
2. The cultivated area of Maize and cotton will increase
3. The cultivated area of millet and sorghum will decrease
4. More land will be likely left in Fallow
5. Capital is the more constrain of the farm ponds implementation

Implementing partners

- Centre de coopération internationale en recherche agronomique (CIRAD)
- Institut de l'Environnement et Recherches Agricoles (INERA)

Good practice and lessons learned

Regarding adaptation planning

Good practices to be shared and disseminated are the use of farm ponds for supplemental irrigation during dry spells of crops season.

The main challenge that will face adoption of farm ponds is the lack of capital.

To overcome this challenge and facilitate the adoption of this technology/tool, decision makers and/or farmers' organizations, microfinance institution should consider agricultural policies such as providing farmers with credit.

Regarding knowledge-sharing and training modalities:

We wish to convince farmers to adopt and disseminate farm ponds. The following activities are planned to achieve the objective.

1. Organize workshops with stakeholders (farmers, Ministry of agriculture and livestock, financial companies) to present the benefits of farm ponds.
2. Identify a group of farmers as leader
3. Advice farmers to take the lead and disseminate farm ponds through good

practices

4. Convince and encourage government, NGOs and finance companies to support farmers with credit for the implementation of the farm ponds.

Challenge that will face farm ponds dissemination will likely be that of resources mobilization (finance, identification of resource persons, translation of results into simple and comprehensive local language).

**Further
information**

- WASCAL website: www.wascal.org

III. Latin America and the Caribbean

1. Farmers in Colombia combine scientific and local knowledge to manage agroclimatic risk

Climate Change, Agriculture and Food Security (CCAFS) - Latin America Regional Program

Countries	Adaptation element	Activities
Colombia	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; capacity building; stakeholder involvement	Meeting workshop; Knowledge product; Capacity building activity
Thematic areas		Key words
Ecosystems; Human settlements; Water resources; Human health; Linking local and national adaptation planning		Local Technical Agroclimatic Committees, agroclimate risks, local knowledge.

Description of the activities Today in four regions of Colombia, local agricultural sector institutions and technicians are tailoring agroclimatic forecasts based on context-specific conditions as an input to make recommendations to farmers within the discussions that take place every month at the Local Technical Agroclimatic Committees. These Committees were established by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) jointly with the Ministry of Agriculture and Rural Development of Colombia by the end of 2014 in two regions of the country, Córdoba and Cauca, with the purpose of creating a dialogue setting that could bring together scientific knowledge (seasonal forecasting and outputs from crop modelling) with local knowledge (farmers, indigenous groups, technicians). The purpose of this dialogue is to develop tailored recommendations for farmers in terms of when to plant, what variety, management practices, water and fertilizers use, among others, through monthly Local Agroclimatic Bulletins. As a result of the success of these Committees, two more Committees have been established during 2015 in Sucre and Magdalena, and each time more local and national level institutions want to be involved given that the initiative is being considered as a practice that can reduce agroclimatic risk by providing useful information that can offer probable scenarios to farmers based on agroclimatic

forecasts for the next two weeks and six months. Additionally, Colombian government stated in their Intended Nationally Determined Contributions (INDC) for adaptation the establishment of at least 15 Local Technical Agroclimatic Committees in the country during the next years.

Description of the tool or method Climate prediction are developed for the next two-week and six-month period. The model used is the canonic correlation analysis (Bretherton et al., 1992; Glahn, 1968) using the Climate Predictability Tool (CPT), which is used to build robust regression models that allow relating climate patterns, climate forcing in Colombia and in situ observations. The prediction on the status used are generated based on the values for forthcoming months of SST field using a non-exclusively statistical approach, that is, a hybrid approach (dynamic-statistical) following the guidelines from Gershunov and Cayan (2003) and Gershunov et al. (2000).

The agroclimatic forecasts are generated through FAO models Aquacrop and Cropwat which are calibrated for Colombian conditions for a good number of crops including the ones addressed in the LTAC (maize, rice, cotton, banana, pastures, among others).

Timeline November 2014 – December 2015.

Target audience and beneficiaries Farmers from four regions of the country (Cauca, Córdoba, Sucre and Magdalena/La Guajira/Cesar) producing rice, maize, beans, banana, cotton, fruits and livestock.

Outcomes Farmers are learning how to use climate information, identify the implications in their crops and develop different options to minimize reductions in yield or total losses

Agroclimate information at local level is seen as another input on decision making process for farmers but also for insurance companies, technicians, local and national government, producers' associations, etc.

National government have realized the importance of initiatives at local level that address farmers needs by committing in the INDCs with the implementation of at least 15 LTAC in the country to reduce agroclimatic risks.

Implementing

partners

Ministry of Agriculture and Rural Development (MADR)

Colombian Corporation for Agricultural Research (CORPOICA)

National Federation of Cereals Producers (FENALCE)

National Federation of Rice Producers (FEDEARROZ)

Association of Banana Producers of Magdalena and La Guajira (ASBAMA)

Rio Piedras Foundation in Cauca

Good practice and lessons learned**Regarding knowledge-sharing and training modalities:**

Good practices:

Farmers are learning how to use climate information, identify the implications in their crops and develop different options to minimize reductions in yield or total losses. The recommendations made in the local agroclimatic bulletin that is published after each meeting of the LTACs are being used as a tool to support farmers' decision-making process to select the planting date and variety, as well as water needs and availability. Particularly, in Cauca farmers the use of the information have been useful to choose what kind of seeds they need to use, as well as the implementation of innovative water harvest systems for crops and pastures at small scale as an adaptive measure for dry periods. Experimental plots have been established on both regions in order to test the usefulness of the recommendations, these plots are carried out by farmers with support from technicians that participate in the monthly meetings of the LTAC and implement recommendations such as the planting date in the field. The experimental plots are also providing information to validate the forecasts, calibrate crop models and select maize genotypes in the case of Cordoba for example.

Lessons learned:

Understanding local communities, their languages and most of all their needs was crucial regarding learning during the process, as well as their effort in understanding scientists. Therefore, it was a rich learning platform created in the regions where the LTAC were established. Even though, more needs to be done in order to reach more farmers and actually influence the adaptation planning process in more depth since now it is being mainly focused in yield losses, planting and water availability as a consequence of the presence of El Niño phenomenon, however according to the MADR this is meant to be a long term strategy to reduce agroclimatic risks in the country involving each time

more natural resources management as well as health issues.

Further information

- Primera reunión de las mesas técnicas regionales sobre pronósticos agroclimáticos en la sub-cuenca del Río Piedras
<http://ccafs.cgiar.org/primera-reuni%C3%B3n-de-las-mesas-t%C3%A9cnicas-regionales-sobre-pron%C3%B3sticos-agroclim%C3%A1ticos-en-la-sub-cuenca>
- Mesas técnicas regionales sobre pronósticos agroclimáticos en Córdoba, Colombia
<http://ccafs.cgiar.org/es/mesas-t%C3%A9cnicas-regionales-sobre-pron%C3%B3sticos-agroclim%C3%A1ticos-en-c%C3%B3rdoba-colombia>
- Bajó alerta del 'Niño'
<http://elmeridianodecordoba.com.co/agro-y-economia/item/78562-baj%C3%B3-alerta-del-ni%C3%B1o>
- Se necesita información local
<http://elmeridianodecordoba.com.co/agro-y-economia/item/78809-se-necesita-informaci%C3%B3n-local>
- Clima de Popayán es de difícil predicción
<http://hsbnoticias.com/noticias/nacional/clima-de-popay%C3%A1n-es-de-dif%C3%ADcil-predicci%C3%B3n-126015>
- Pronósticos agroclimáticos al alcance de los agricultores
<http://www.acueductopopayan.com.co/informese/noticias/pronosticos-agroclimaticos-al-alcance-de-los-agricultores/>
- [3MTA] PRONOSTICOS AGROCLIMÀTICOS AL ALCANCE DE LOS AGRICULTORES
<http://www.acueductopopayan.com.co/informese/noticias/pronosticos-agroclimaticos-al-alcance-de-los-agricultores/>
- Recomendarán fechas de siembra
<http://elmeridianodecordoba.com.co/agro-y-economia/item/81516-recomendar%C3%A1n-fechas-de-siembra>
- Siguen estudiando el clima
<http://elmeridiano.co/siguen-estudiando-el-clima/1880>
- Corpoica y gremios agropecuarios en busca de soluciones agroclimáticas para los productores del Caribe
<http://www.corpoica.org.co:8086/noticias/generales/soluciones-agroclim%C3%A1ticas-para-los-productores-del-caribe/>
- En la mesa agroclimática
<http://elmeridiano.co/en-la-mesa-agroclimatica/2241>
- Las fechas que recomiendan
<http://elmeridiano.co/las-fechas-que-recomiendan/3477>
- Quieren regionalizar pronósticos
<http://elmeridiano.co/quieren-regionalizar-pronosticos/4415>

- Analizarán panorama climático
<http://elmeridiano.com.co/analizaran-panorama-climatico/8208>
- Menos lluvia en época de lluvia
<http://elmeridiano.co/menos-lluvia-en-epoca-de-lluvia/10952>
- Parcelas experimentales de Córdoba, eje central de la novena Mesa Técnica Agroclimática
<https://ccaafs.cgiar.org/es/parcelas-experimentales-cordoba-central-novena-mta>
- Resaltó boletines agroclimáticos
<http://elmeridiano.co/resalto-boletines-agroclimaticos/16796>
- Colombia presentó su contribución prevista determinada y la agricultura es protagonista
<https://ccaafs.cgiar.org/es/colombia-presento-indc-agricultura-protagonista>
- Alerta agrícola
<http://elmeridiano.co/alerta-agricola/18925>
- La Mojana cuenta con Mesa Técnica Agroclimática
<http://www.eluniversal.com.co/regional/sucre/la-mojana-cuenta-con-mesa-tecnica-agroclimatica-210477>
- Finagro - Gestión de Riesgos Agropecuarios
<https://www.finagro.com.co/productos-y-servicios/ISA/gesti%C3%B3n-de-riesgos-agropecuarios>
- Mesas Técnicas Agroclimáticas (Local Technical Agroclimatic Committees)
https://ccaafs.cgiar.org/es/mesas-tecnicas-agroclimaticas#.Vp0R1_nhDIU
- La adaptación no es ‘talla única’: adaptar cultivos con predicciones climáticas a escalas locales es posible <https://ccaafs.cgiar.org/es/adaptacion-con-predicciones-climaticas-a-escal-local-es-posible#.Vo63wfnhBhF>
- CCAFS website: <https://ccaafs.cgiar.org/>

2. Climate-Smart Agriculture prioritization framework in Guatemala
 Climate Change, Agriculture and Food Security (CCAFS) - Latin America Regional
 Program

Countries	Adaptation element	Activities
Guatemala	adaptation planning and practices; communication and outreach/awareness; institutional arrangements; monitoring and evaluation; socio economic data and information; technology support; capacity building; impact assessment; science and research; stakeholder involvement	Meeting workshop; Knowledge product; Other

Thematic areas	Key words
Ecosystems; Water resources; Human health; Human settlements; Linking local and national adaptation planning	Climate-smart agriculture, food security, productivity, adaptation, mitigation, sustainable agriculture, drought, participatory, cost benefit analysis, prioritization, national planning

Description of the activities Climate-smart agriculture (CSA) is a complex concept that integrates productivity, adaptation, and mitigation. It encompasses many ongoing farm management practices, as well as new practices, technologies, and services. The ‘climate-smartness’ of options also depends on the context. Given all of this, decision-support frameworks are needed assess tradeoffs between various CSA options and to facilitate the identification of best-bet investment portfolios.

The Global Agricultural Research Partnership (CGIAR) Research Program on Climate Change, Agriculture and Food Security (CCAFS) and the International Center for Tropical Agriculture (CIAT) have taken on the challenge of developing a framework for prioritizing investment in CSA that is evidence-based, yet realistic in that it can move forward in the face of data and resource constraints. The process grounds prioritization in inclusive participatory processes integrating actors to ensure alignment with stakeholder criteria for prioritization and contextual realities. Flexibility is a key characteristic of the process to ensure users across sectors and levels can modify the process for their planning needs. The prioritization framework uses a four phase approach to guide stakeholders through the process of filtering a long list of applicable CSA options into portfolios of priority practices. The phases are additive, with

each refining the previous outputs. The process generally takes between 6-12 months, and can be simplified and still provide valuable inputs into investment decision-making.

The CSA Prioritization Framework (CSA-PF) has been used in planning processes from local to national levels, with pilot studies completed in Colombia (local level), Guatemala (national/sub-national), and Mali (national/sub-national) and ongoing use in Ethiopia (national/sub-national), Ghana (national/sub-national), Nicaragua (regional/national/subnational), and Vietnam (national). The Ministry of Agriculture and Livestock (MAGA) in Guatemala was the first to utilize the framework and assist in adjusting the participatory process and phases to the context and stakeholders, including government, academia, research centers and productive sectors. The intention is to establish national planning processes to establish priority actions with local actor feedback and then test out actions at the local level, the results of which can feedback into national decision making. This focused on the prioritization actions, and next steps would include implementation, M&E, and adjusting of national plans.

The first step in the CSA-PF in Guatemala was the identification of a strategic focus for a CSA initiative in the country, based on vulnerable areas and crops to climate change and policy entry points. This was followed by identification of ongoing and potentially applicable CSA practices related to the scope. The practices were then assessed for their expected impact if scaled out to currently non-implementing farms based on CSA indicators selected by MAGA. The second phase consisted of a workshop where the assessments of climate-smartness of practices were presented to stakeholders, including university researchers, government institutions, international development agencies and representatives of producers' associations in Guatemala City. The aim was to exchange knowledge on CSA related to Guatemala and select a set of high-interest practices (~10) from the long list of options jointly with other key stakeholders. Participants were able to share criteria for prioritizing practices from their perspective and preferred balance of tradeoffs between productivity, adaptation, and mitigation effects, a critical contribution ensuring the prioritization process is ground in national expert knowledge and realities. Information on synergies between various practices and links with ongoing and future environmental and climate threats were captured.

The next phase of the process further analyzed the resulting short-list of high interest practices generated from the workshop. Economic modelling was conducted, using additional data (e.g. from literature review, primary data, and expert knowledge), to assess the costs and benefits of practices within the mixed maize-bean system in the Dry Corridor. The economic modelling included evaluation of social and environmental externalities. The final results

were discussed at a final workshop where stakeholders utilized the information on impact tradeoffs, costs and benefits, synergies, and barriers to adoption to select portfolios of CSA practices for further investment and scaling out.

At the end of the prioritization process Guatemalan stakeholders had specific climate-smart agriculture investment portfolios for the Dry Corridor and initial action plans for implementation. These portfolios are directed at different types of farmers and also address specific climate threats. The prioritization activities provide valuable information for selecting the most appropriate practices or approach to invest in agriculture according to national context and environmental and socio-economic challenges. The indicators used to assess the CSA practices can also be used in Monitoring & Evaluation to evaluate existing activities for their 'climate-smartness' as well as setting up databases to establish specific impact of CSA practices in certain contexts in Guatemala. The framework serves as a model to replicate in other regions of the country, region, and around the world.

Description of the tool or method

The CIAT-CCAFS developed CSA Prioritization Framework (CSA-PF) is a participatory process that links multiple analytical tools and methodologies to assess CSA practices, linking evidenced based decision making with stakeholder priorities. The stepwise application of the CSA-PF is described above (section 6). The activity in Guatemala was both designed to test the CSA-PF and modify it for use by MAGA, as well as to share information about CSA prioritization considerations and tools with government and agricultural sector actors. The stakeholders involved now have information on a CSA decision-support tool that can be used in iterative design and management of CSA initiatives. The CSA-PF can be applied to address climate change and vulnerability in the agricultural sector in sub-national areas (such as the Guatemalan Dry Corridor) related to national priorities, or prioritization can be conducted at the local, national, or regional levels.

The CSA-PF aims to create a decision making forum for stakeholders to narrow down long lists of CSA options into packages of CSA practices for investment and scaling out. It uses a four phase approach which mixes analytic phases with stakeholder engagement. During the first phase the scope of the study is identified, and based on this context a long-list of potential CSA practices is developed and then assessed based on indicators of CSA selected by the lead users of the framework. Stakeholders, including academics, producers, donors, government decision-makers, and others, then explore the results and tradeoffs between different options in order to identify a short-list 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 from the entire process and prioritize CSA practices for investment portfolios.

The CSA-PF is highly flexible and ideally modifications are co-designed with various stakeholders. The results of the CSA-PF are meant for uptake into planning and development of new policies and government programs, as well as adjust donor calls, research agendas, or NGO activities. The overall objective is to identify priorities for targeting investments that aim to address CSA goals now and in the future. The methodology allows for the integration of the CSA concept into agricultural and climate change planning through expanding potential entry points for action and cooperation among actors working on any of the CSA goals (productivity, adaptation, mitigation). That said, the framework can also be tailored to specifically focus on adaptation or mitigation options in the agricultural sector.

Timeline

The project was conducted from 2014-2015. In 2014 the first two phases of the CSA-PF process were complete (first workshop held August 2014) and the third phase (economic assessment) was initiated. The final stakeholder workshop where stakeholders selected the CSA investment portfolios was conducted in June 2015. Given that the pilot study in Guatemala was the first time the CSA-PF was being implemented, it is expected that future use of the framework could be shorted to 6 months or even less if stakeholder networks are already established.

CCAFS is continuing to support follow up activities in Guatemala in 2016, which include further dissemination of results and meetings with donors and strategic partners to strengthen cooperation on CSA initiatives and generate the enabling environment for strategically scaling out CSA practices.

Target audience and beneficiaries

Government decisions makers are the audience for the use of the tool and for the development and application of the CSA portfolios.

The ultimate beneficiaries are farmers from Dry Corridor of Guatemala (approximately 170,000 smallholder family farmers), which are the targets of policies the Ministry of Agriculture and Livestock have implemented to scale out various CSA practices.

Outcomes

- National stakeholders gained knowledge about the CSA concept and joined together to identify perspectives for how CSA should be applied in

Guatemala.

- MAGA explored the integration of innovative tools for supporting decision making in agricultural planning, especially related to environmental constraints such as the prolonged drought in 2014 in the “Dry Corridor”, and how to strengthen food security of small basic grains farmers. The CSA-PF contributed to assessing and validating previously incentivized practices (arising from a policy for drought impacts attention) and prioritized practices for promotion by government extension services.
- MAGA has priority CSA practices and portfolios selected for scaling out with extension offices and inclusion in future Dry Corridor programs.
- Indicators for evaluating CSA have been selected with the Guatemalan context in mind and ready for use in future analyses and M&E of prioritized activities. Analysis using these indicators on expected impact can be used to assess if practices can provide shift in agricultural systems as expected, and this information from local level testing of practices can feed back into national planning.

Implementing partners Lead partner: Ministry of Agriculture and Livestock (MAGA), Climate Change Unit

Role: Leading the use of the CSA Prioritization Framework and co-facilitating the implementation process in the country.

Collaborators

Government: Ministerio de Desarrollo Social de Guatemala (MIDES), Ministerio de Ambiente y Recursos Naturales de Guatemala (MARN), Ministerio de Agricultura Ganaderia y Alimentación de Guatemala (MAGA-DICODER), Instituto de Ciencia y Tecnología Agrícola (ICTA), Consejo Nacional de Ciencia y Tecnología (CONCYT), Consejo Nacional de Áreas Protegidas (CONAP), Instituto Nacional de Bosques (INAB), Registro de Información Costal (RIC), Consejo Agropecuario Centroamericano (CAC).

International cooperation: Instituto Interamericano de Cooperación para la Agricultura (IICA), Food and Agriculture Organization (FAO), World Wildlife Fund (WWF), World Food Programme (WFP), Heifer, Catholic Relief Services (CRS).

National academic and research institutions: Universidad del Valle de Guatemala (UVG), Universidad de San Carlos (USAC), Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Asociación Nacional del Café (ANACAFE).

Various producers organizations: Federation of Cooperatives of the Verapaces (FEDECOVERA), Asociación de cardamomeros de Guatemala (CARDEGUA), Agencia de Desarrollo Económico Local (ADEL), Copan'chorti', Asociación Política de Mujeres Mayas (MOLOJ). (organizations that participated in the workshops)

Role: Participated in the two CSA Prioritization stakeholder workshops and/or provided data for the analyses.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

Good practices:

- Adaptation planning, as well as CSA, require assessing impacts across social, environmental, and economic aspects of socio-ecological systems. The CSA-PF emphasizes this by assessing CSA practices by indicators of changes across sectors, such as yield, income, ecosystem services, water and soil use and quality, emissions, etc.
- Prioritization of investments towards agriculture and climate change planning should include explicit discussion of tradeoffs between practices related to outcomes of interest across time, and clarify who is benefiting and losing related to different priorities.
- The need to link analytical tools with participatory processes was highlighted. While analytical tools increase the evidence that decision-makers have to plan actions, decisions are not made in a vacuum. The CSA-PF processes is structured around the recognition that analytic tools can be useful, but will not capture all variables decision-makers weigh, and therefore participatory design of tools (e.g. selection of indicators for assessment of options) and participatory evaluation of results and final selection of actions for investment or inclusion in policies is critical.
- Priority CSA and adaptation options also vary considerably based on the context in which they are being applied. The scope of assessments and descriptive characteristics must be clearly defined and utilized to tailor analyses to local realities.
- Diverse stakeholder representation is imperative to ensure that the concerns of various actors are considered and addressed during planning processes.

Lessons learned:

- Uptake of practices promoted as national CSA priorities is occurring, but not always at high rates of adoption. Drought related CSA practices (water reservoirs, heat and water-stress resistant crop varieties) are priorities to policy makers and funders, yet many farmers face technical and financial

barriers to adoption. Local actors and farmers priorities should be included early in decision making processes to identify adoption barriers as well as expected impacts of practices in specific contexts.

- Practices and services ranked high related to the CSA goals and with low adoption rates are potential priorities for targeting incentives as part of national agricultural and climate change strategies.
- More than 50% of farmers implement two to three practices simultaneously, indicating that CSA investments need to refer to technological packages, rather than isolated solutions.
- CSA policies should promote both practices and services, such as financial services (crop insurance, subsidies, credits, etc.) and strategies for knowledge sharing and management (strengthening of extension services, early warning system, etc.).
- Multilevel and cross-sector decision-making processes are needed to identify, assess, and prioritize context appropriate CSA initiatives to effectively scale out CSA to targeted farming communities.

Further information

- CSA Prioritization Framework Blog: https://ccafs.cgiar.org/blog/making-smart-decisions-food-secure-future#.VqeIP_197IV
- CSA Prioritization Framework Concept note:
 - <https://cgspace.cgiar.org/handle/10568/68487> (SPN)
 - <https://cgspace.cgiar.org/rest/bitstreams/65222/retrieve> (ENG)
- CSA Prioritization Framework in Guatemala workshop 1 (ENG/SPN)
 - https://ccafs.cgiar.org/blog/creating-learning-center-agricultural-development-guatemala#.VqImg_krLIU
- CSA Prioritization Framework in Guatemala workshop 2 (SPN)
 - https://ccafs.cgiar.org/blog/%C2%BFc%C3%B3mo-combatir-la-inseguridad-alimentaria-en-guatemala#.VqIqt_krLIU
- Presentation of CSA Prioritization Framework and Guatemala pilot at COP20
 - <https://ccafs.cgiar.org/blog/making-smart-decisions-food-secure-future#.VqIxDvkrKUI> (blog)
 - <https://ccafs.cgiar.org/node/51659#.VqeJKv197IV> (summary report)
- Community-Based Adaptation 9 Conference Poster, “Prioritizing Investments in Climate-Smart Agriculture in Guatemala”
 - https://www.weadapt.org/system/files_force/caitlin_corner-dolloff.pdf?download=1
- CCAFS website: <https://ccafs.cgiar.org/>

3. Scenario guided development of Costa Rica's INDC
Climate Change, Agriculture and Food Security (CCAFS) - Latin America Regional
Program

Countries	Adaptation element	Activities
Costa Rica	adaptation planning and practices; communication and outreach/awareness; climate scenarios; impact assessment; science and research; socio economic data and information; stakeholder involvement; vulnerability assessment	Meeting workshop

Thematic areas	Key words
Ecosystems; Water resources; Human health; Human settlements	Climate change, scenarios, policy, INDC, Costa Rica

Description of the activities Costa Rica's Intended Nationally Determined Contribution (INDC) was designed through a participatory process in which the building and use of future scenarios was the first step in a national dialogue to define, test and improve mitigation measures to lower emissions of greenhouse gases. Projections calculating the impact of low emission strategies based on historical data were not enough to define the INDC, because these forecasts were based on social, economic and environmental assumptions such as the demand for electricity, consumer patterns, but also private and public sector investments and the availability of natural resources, which might change in the upcoming years, considering the complex contexts these conditions are determined by. In order to understand how a significant change in paradigm could be made, Costa Rica's INDC team of the Ministry of Environment (MINAE) decided to create and explore future scenarios detailing possible pathways of development, and analyze what they could mean for emission reductions. Through this process they would not only explore positive scenarios, but also possible futures in which circumstances to reduce emissions are not that favorable.

Stakeholders:

COSTA RICA'S SCENARIO-GUIDED INDC PROCESS, STEP BY STEP:

1. 27 national experts and decision makers in climate change and all sectors involved in reducing emissions (agriculture, transport, forests, electric energy

and waste) came together to revise a summary document of current strategies that the Ministry of Environment was taking into account at that time to reduce emissions. The document had been put together for the workshop and was based on conservative quantitative modeling of what could be achieved with existing technology and social / political arrangements. This modelling was carried out by a separate team with support from the World Bank.

2. Experts from each sector validated the proposed strategies in their area of expertise, suggested changes and added strategies to reduce emissions that were not yet taken in account.

3. Participants created four future scenarios of Costa Rica in 2030 under climate change, both positive as well as negative, based on future drivers of change relevant to reducing emissions in agriculture and livestock, electric energy, transport, waste and forests. The scenarios revealed relevant uncertainties that might influence the possibility of effectiveness of low emission measures.

4. Finally, the validated emission reduction measures of all sectors were tested for resilience in the four future scenarios. Recommendations were made on how to improve each strategy under the most common circumstances across all four scenarios.

5. The improved emission reduction measures were used as an input for discussion in the following national debates for each specific sector. They were also taken into account at the final stage of the INDC design. 10 of the 23 measures on which the INDC is based were proposed in the scenarios workshop.

Description of the tool or method

The CCAFS future scenario methodology is 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 Southeast Asia, Central America and the Andes. To build the six regional scenarios, CCAFS convened policy makers, businesses, nongovernmental and civil society organizations, researchers and media in each region. The multi-stakeholder groups picked out key uncertainties in coming decades: climate change, for one, but also social, economic and political drivers of change. They crafted stories of how climate impacts might combine with shifts in populations, power structures or financial flows. Then they collaborated with modelers to quantify, model and refine four future scenarios. Food security trends were projected with a model called International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) from the International Food Policy Research Institute (IFPRI), while the Global Biosphere Management Model (GLOBIOM) model

from the International Institute For Applied Systems Analysis (IIASA) added land use patterns. The final stories were told with words, numbers, maps, and in some regions, evocative images or interactive learning tools. The scenarios have been used to guide regional policymaking and also specific national policies.

Timeline	The scenario workshop took place from 5-6 august 2015. During august and September, the improved scenario guided emission reduction measures were used as an input for discussion in the following national debates for each specific sector; agriculture and livestock, transport, forests, electric energy and waste. They were also taken into account at the final stage of the INDC design. Costa Rica presented the INDC at the COP21 in Paris in December 2015.
Target audience and beneficiaries	National experts and policymakers in climate change adaptation and mitigation measures.
Outcomes	<ul style="list-style-type: none">▪ The CCAFS scenario methodology made it possible to start up a national dialogue on mitigation and adaptation measures in a context where the usual INDC design, derived from projections calculating the impact of low emission strategies based on historical data, were insufficient to create the change of paradigm that Costa Rica aims for to guarantee its ambitious emission reduction goals.▪ 10 of the 23 measures on which Costa Rica ´s INDC is based were proposed in the scenarios workshop.▪ By not only looking at emission reductions, but also at possible economic, political, environmental and social development as a whole, experts and decision makers were able to identify the preconditions needed to create a country in which emissions can be reduced, as well as obstacles that might be encountered along the way.▪ This systemic approach also shed light on the collateral effects of measures to reduce emissions in one sector on other sectors. This was important since an INDC wants to focus on strategies that have an impact on several sectors.
Implementing partners	<ul style="list-style-type: none">▪ The Climate Change department of the Ministry of Environment (MINAE): Lead the development of Costa Rica ´s INDC▪ United Nations Development Program (UNDP): Supported the development of the INDC and financed the scenario workshop through their

- capacity building program for Multilateral Environmental Agreements.
- University for International Cooperation (UCI): Coordinated, designed and lead the scenario workshop.
- Environmental Change Institute, University of Oxford: Co-designed the scenario workshop.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

Good practices:

Scenario guided policymaking in contexts of high uncertainty and low controllability.

Lessons learned:

- The use of future scenarios has proven to be an effective tool for dialogue when stakeholders from multiple sectors and decision levels need to come to an arrangement and model results do not cover enough scope and depth of the needed debate (Vervoort et al, 2014).
- Projections of future emissions based on historical data are less suitable when the conditions in which they are to be implemented are likely to change. Instead, back-casting towards the present from future scenarios based on drivers of change is a useful method to explore alternative pathways of development and test the apparent resilience of mitigation measures (Kok et al, 2014; Vervoort et al, 2014). In the case of Costa Rica's INDC, model results showing forecasts were compared and contrasted with narratives of future scenarios to increase insight on possible future changes that could affect mitigation measures.

Further information

- Website CCAFS Future Scenario Program: <https://ccafs.cgiar.org/scaling-out-scenario-guided-policy-and-investment-planning#.VqZfgfkrIgs>
- Policy brief on Costa Rica's scenario guided INDC: https://ccafs.cgiar.org/es/publications/shifting-paradigm-narratives-future-guide-development-costa-ricas-indc#.VqZgD_krIgs
- Video: <https://vimeo.com/147130700>
- Pictures: <https://www.flickr.com/photos/cgiarcclimate/albums/72157661780555121/with/23435729186/>
- CCAFS website: <https://ccafs.cgiar.org/>

4. Production and dissemination of information on the economic valuation of ecosystems by watersheds

Caribbean Community Climate Change Centre (CCCCC)

Countries	Adaptation element	Activities
Grenada; Jamaica	socio economic data and information; capacity building; climate scenarios; education and training; science and research; stakeholder involvement; vulnerability assessment	Knowledge product

Thematic areas	Key words
Ecosystems; Water resources	Economic valuation, Ecosystem goods and services, Watershed

Description of the activities 1. Estimate the economic valuation of ecosystem goods and services provided by the Rio Cobre watershed in Jamaica and Carriacou Island in Grenada.
2. Estimate the change of these services exacerbated by climate change and human activity in the medium and long term.

Description of the tool or method A four step methodology was utilized to undertake the studies: 1. Island characterization, 2. Economic estimates of ecosystem goods and services provided by island or watershed, 3. Estimated changes provoked by climate change and human activity, and 4. Proposals for funding mechanisms for management of resources.

Timeline The reports were published in November 2015. They are the results of studies undertaken in 2014 and 2015 as part of a broader regional project implemented by the University of the West Indies (UWI) and funded by the International Development Research Centre (IDRC).

Target audience and beneficiaries The target audience was primarily government agencies such as those responsible for agriculture, forestry, planning, protected areas, and tourism.

Outcomes The production of two studies on the economic valuation of ecosystem goods and services and the changes that would be exacerbated by climate change and human activity in the medium and long term.

Implementing partners The reports were prepared by (1) Centro Meteorológico de Matanzas,(2) Instituto de Meteorología, (3) Centro de Investigaciones de Medio Ambiente de Camagüey, (4) Universidad de Matanzas, (5) Universidad de Camagüey. The Caribbean Community Climate Change Centre collaborated in preparing the report.

They undertook stakeholder consultations with officials in Grenada and Jamaica.

Good practice and lessons learned **Regarding adaptation planning**

A recurrent problem that has been identified in the Caribbean and again when undertaking these studies is the lack of socio economic data. This weakness was overcome through stakeholder consultations with several government and non-government organizations and grass roots organizations. This interaction may have proven more beneficial than if there had been less consultations because the data was available.

The activities brought together several stakeholders that do not necessarily interact on a regular basis.

Regarding knowledge-sharing and training modalities:

This is yet to be evaluated as there has not been enough time to measure how much the report has been accessed.

Further information

- CCCCC website: <http://www.caribbeanclimate.bz/>

5. Demonstrate the use of the weather generator tool in the human health and human settlements

Caribbean Community Climate Change Centre (CCCCC)

Countries	Adaptation element	Activities
Belize	adaptation planning and practices; monitoring and evaluation; capacity building; climate scenarios; education and training; science and research; vulnerability assessment	Knowledge product

Thematic areas	Key words
Human settlements; Human health	Urban development, flood risk, flooding extreme events, weather generator, Belize City, Belize, health rainfall, temperature, dengue fever.

Description of the activities Explore the problem faced by Belize City as a result of intense rainfall, assess the implications of potential changes, and suggest issues to be addressed in planning and policymaking.

Description of the tool or method The weather generator produces a daily time series which can be compared with climatological data and from outputs from Providing Regional Climates for Impact Studies (PRECIS) model runs.

Timeline The reports were published in November 2015. They are the results of studies undertaken in 2014 and 2015 as part of a broader which developed a weather generator tool and related software that can be used to generate climate scenarios. The studies were undertaken by the Caribbean Community Climate Change Centre and the University of East Anglia which also developed the weather generator.

Target audience and beneficiaries The target audience are all stakeholders involved in climate change activities in the Caribbean.

Outcomes The production of two studies which demonstrates how the weather generator can be used to provide data for vulnerability studies that address human health and human settlements.

Implementing partners The reports were prepared by the Caribbean Community Climate Change Centre and the University of East Anglia, UK.

Good practice and lessons learned **Regarding adaptation planning**
Good practice: the use of the weather generator to produce daily time series for vulnerability studies was demonstrated.

Lesson learned: a reliable time series can be generated for vulnerability studies.

Regarding knowledge-sharing and training modalities:

This is yet to be evaluated as there has not been enough time to measure how much the report has been accessed.

Further information

- CCCCC website: <http://www.caribbeanclimate.bz/>

6. Sensitisation Workshop on Sharing Best Practices to Build Resilience in the Tourism and Fisheries Sectors

Caribbean Natural Resources Institute (CANARI)

Countries	Adaptation element	Activities
Antigua and Barbuda; Dominica; Grenada; Saint Lucia; Saint Kitts and Nevis; Saint Vincent and the Grenadines	capacity building; climate scenarios; vulnerability assessment	Meeting workshop; Capacity building activity

Thematic areas	Key words
Ecosystems; Human settlements; Water resources; Human health	OECS, Eastern Caribbean, tourism, fisheries

Description of the activities The Organisation of Eastern Caribbean States (OECS) Commission contracted CANARI to facilitate a three-day workshop for key stakeholders in the fisheries and tourism sectors in the Eastern Caribbean. The capacity building initiative was held under the Reducing the Risks to Human and Natural Assets Resulting from Climate Change (RRACC) Project funded by the United States Agency for International Development (USAID). It was targeted at a mix of stakeholders from public sector agencies, small scale resource users and small and micro entrepreneurs to facilitate sharing of knowledge and perspectives and development of a collaborative approach to address climate change threats in coastal and marine areas.

The facilitation approach focused on building knowledge of participants on principles and best practices via a mix of expert and country presentations, peer sharing and analysis. Opportunities for application of knowledge and experiential learning were provided via team field exercises on a case study site in the village of Calliaqua in southern St. Vincent.

Goal:

To increase the knowledge of key tourism and fisheries stakeholders on climate change impacts on their sectors and best practices for building resilience at the sectoral, organisational and community levels.

Objectives:

By the end of the workshop, participants will have enhanced knowledge on:

1. the impacts of climate change on coastal and marine ecosystems and the tourism and fisheries sectors dependent on the goods and services from these ecosystems;
2. best practices in using an Ecosystem based Approach (EbA) to resilience building for: awareness raising and participatory abundance and vulnerability assessments; participatory policy development and planning; participatory governance arrangements and building the capacity of stakeholder organisations to effectively engage; community-based approaches and joint actions at the local level; and ‘climate proofing’ tourism and fisheries businesses using a blue economy approach.

- Description of the tool or method**
- Participatory Three-Dimensionally Modelling (P3DM): Using Information Communication Technologies (ICT) tools in facilitating participatory climate change vulnerability assessments addresses 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.
 - Caribbean Climate Online Risk and Adaptation tool (CCORAL): Online support system for climate resilient decision making to identify actions that minimise climate related loss, take advantage of opportunities and build climate resilient development.

Timeline July 1, 2015.

Target audience and beneficiaries Public sector agencies, small scale resource users and small and micro entrepreneurs in the tourism and fisheries sectors.

Outcomes Common understanding built and collaboration fostered among public sector agencies, small scale resource users and small and micro entrepreneurs in the tourism and fisheries sectors to address shared risks due to climate change in the Eastern Caribbean.

Implementing partners Organisation of Eastern Caribbean States (OECS) Commission - project management and technical review.

Good practice and lessons learned **Regarding adaptation planning**

Good practices:

- Use of an Ecosystem-Based Approaches in resilience building
- Participatory policy development and planning to address climate change
- Use of ICT tools to facilitate participatory vulnerability assessments - Participatory Three-Dimensionally Modelling (P3DM), Participatory Video (PV) and Photojournaling
- Climate-proofing community enterprises
- Communication and awareness best practices in the Caribbean

Lesson learned:

An integrated, ecosystem-based and participatory approach to adaptation planning is needed for coastal and marine areas in the Caribbean islands where many sectors share space and resources and face common threats from climate change

Regarding knowledge-sharing and training modalities:

Good practices:

- Use of a practical case study field exercise to do a rapid participatory vulnerability assessment
- Sharing best practice examples from the Caribbean

Lessons learned:

- Bringing together stakeholders from government, resource users and the private sector to build common understanding and foster collaboration to address shared risks due to climate change
- Bringing together stakeholders from the fisheries and tourism sectors, which traditionally are seen to compete for space and natural resources, to build common understanding and foster collaboration to address shared risks due to climate change

**Further
information**

- More information on the workshop : <http://www.canari.org/sensitisation-workshop-on-sharing-best-practices-to-build-resilience-in-the-tourism-and-fisheries-sectors-in-the-oecs/>
- OECS website, on RRACC project: <http://www.oecs.org/our-work/projects/rracc?showall=1&limitstart=>
- CANARI website: <http://www.canari.org/>

7. Updating Montserrat’s National Climate Change Policy and Developing an Action Plan
 Caribbean Natural Resources Institute (CANARI)

Countries	Adaptation element	Activities
Montserrat – Overseas Territory of the United Kingdom	adaptation planning and practices; communication and outreach/awareness; institutional arrangements; stakeholder involvement	Meeting workshop

Thematic areas	Key words
Ecosystems; Human settlements; Human health; Water resources	National policy, national plan, Montserrat

Description of the activities The Caribbean Natural Resources Institute (CANARI) facilitated the participatory process to draft Montserrat’s Climate Change Policy and accompanying Action Plan. This was supported under the “Climate Change Adaptation and Sustainable Land Management Project in the Eastern Caribbean” project managed by the Organisation of Eastern Caribbean States (OECS) on behalf of participating members. The focus of this process was to ensure that the Policy is focused to address the adaptation priorities in Montserrat, and to provide an accompanying Action Plan that can be used to operationalise the Policy through identifying specific actions that can realistically be undertaken given the resource constraints facing Montserrat. The Policy and Action Plan was designed to guide the work of all governmental, private sector, non-governmental and civil entities in supporting the transition to a climate resilient, low carbon development path for Montserrat.

The process facilitated by CANARI involved: a desk study to identify key issues; a national consultation workshop and interviews with key stakeholders to get recommendations on revisions and priorities for the action plan; production of a draft Policy and Action Plan; a second national consultation and interviews with key stakeholders to present the draft Policy and Action Plan for refinement and validation; and production of the final draft Policy and Action Plan for presentation to Cabinet.

Description of the tool or Facilitation of stakeholder engagement in development of national policies and

method	plans.
Timeline	April – July 2015
Target audience and beneficiaries	Governmental, private sector, non-governmental and civil entities in Montserrat.
Outcomes	<ul style="list-style-type: none"> ▪ Enhanced commitment of stakeholders from government, private sector and civil society in Montserrat to collaborate on jointly identified priority actions for climate mitigation and adaptation ▪ Institutional mechanism for coordinating actions for climate mitigation and adaptation in Montserrat identified ▪ Draft National Climate Change Policy and Action Plan developed and presented to Cabinet.
Implementing partners	<p>Organisation of Eastern Caribbean States (OECS) Commission - project management and technical review</p> <p>Department of Environment, Montserrat - collaborating partner and technical review</p>
Good practice and lessons learned	<p>Regarding adaptation planning</p> <p>Good practices:</p> <ul style="list-style-type: none"> ▪ Identify actions under nationally determined priority areas spanning sectors (and covering ecosystems, human settlements, water resources and health) – in Montserrat stakeholders identified these as: food security and health; natural ecosystems and resources; energy security; carbon sinks; water security and management; sustainable physical development; human health and well-being; sustainable tourism ▪ Consider linkages between adaptation and mitigation actions (for example enhancing the use of renewable energy is both an adaptation and mitigation action in Montserrat) ▪ Identify key cross-cutting strategies for addressing climate change – in Montserrat stakeholders identified these as: economic planning and management; disaster risk reduction and management; research and knowledge management; capacity development, communication and

awareness; and inter-sectoral coordination.

Lesson learned:

Use existing high-level institutional mechanisms for cross-sectoral coordination and action and expanding responsibilities/mandate to include climate change, rather than creating new institutional structures and processes – in the case of Montserrat it was an existing high-level cross-sectoral committee overseeing land use planning and development.

Regarding knowledge-sharing and training modalities:

Good practices:

- Use of local experts and facilitating cross-sectoral peer exchange in stakeholder dialogues;
- Use of local radio talk shows to engage the wider public.

Lessons learned:

- Use of an independent external facilitator in participatory processes;
- Challenge of engaging private sector and finance sectors in engaging in climate change policy and planning processes.

Further information

- More information on the updating of Montserrat’s national climate change policy and developing of an action plan: <http://www.canari.org/technical-assistance-with-updating-montserrats-national-climate-change-policy-and-developing-an-action-plan/>
- CANARI website: <http://www.canari.org/>

8. Participatory Three-Dimensional Modelling of Watersheds in Dominica for improving resilience to climate change
 Caribbean Natural Resources Institute (CANARI)

Countries	Adaptation element	Activities
Dominica	adaptation planning and practices; climate observations; communication and outreach/awareness; technology support; capacity building; education and training; impact assessment; stakeholder involvement; vulnerability assessment	Meeting workshop; Capacity building activity

Thematic areas	Key words
Water resources; Ecosystems; Human settlements; Linking local and national adaptation planning	Climate change adaptation, P3DM, spatial planning

Description of the activities The project facilitated a Participatory Three Dimensional Modelling (P3DM) process for spatial planning to improve resilience to climate change and extreme events in the Soufriere-Scotts Head-Gallion area in Dominica.

The objectives were:

- a. To facilitate engagement of key stakeholders in building a model of the Soufriere-Scotts Head-Gallion area incorporating scientific, local and traditional knowledge on resources, land uses, impacts of climate change and extreme events (including on economic activity), and existing and potential resilience building measures.
- b. To use the completed model to facilitate participatory analysis of management recommendations for the Soufriere-Scotts Head-Gallion area to improve resilience to climate change and extreme events.
- c. To promote the project results, lessons learnt and recommendations from the use of P3DM as a tool for spatial planning and land utilisation to improve resilience to climate change and extreme events.

Key activities were:

Mobilisation of participants/stakeholders

- A stakeholder identification and analysis was conducted for the site to identify key stakeholders who need to be engaged.
- A mobilisation plan was drafted and implemented.
- A meeting was held with the committee of key stakeholders established by the CATS project to brief them and secure buy-in and involvement in implementation.

Facilitating model building and handover

- A 5 day workshop was facilitated to construct the blank model, populate the model (stakeholders placing information on the model), and conduct analysis of management recommendations to build resilience to climate change.
- Local counterparts were coached as they co-facilitated the process to build local capacity.
- A formal ceremony was held immediately after model building was completed to present the model to the local stakeholders and to present key findings and recommendations to key national decision-makers.

Description of the tool or method The activity used participatory three dimensional modelling (P3DM) to facilitate inclusion of local knowledge in spatial adaptation planning. P3DM allowed the stakeholders to note the impacts of climate change on their communities, assess vulnerabilities and discuss possible adaptation measures.

Timeline January to June 2015

Target audience and beneficiaries

- Government agencies/ divisions in Dominica with the responsibility for management in the Soufriere-Scotts Head-Gallion area inclusive of forestry and fisheries departments, environmental authorities, physical planning, lands and surveys, tourism, agriculture and water and electric utilities
- In the communities of Soufriere, Scotts Head and Gallion in Dominica:
 - Resource users such as farmers, fisherfolk, tour guides and their organisations
 - Private sector such as small and medium sized business owners and employees in the tourism, agriculture and other relevant sectors
 - Civil society organisations, including national non-profit organisations and academic institutes
 - Community based organisations (e.g. village councils, church and youth groups, school clubs) and local community residents.

- Outcomes**
- A 3D model of the Soufriere-Scotts Head-Gallion area was completed and handed over the Village Council with the understanding that it can be used by other organisations for participatory spatial planning and decision-making to build resilience to climate change.
 - Two Dominicans built their capacity to facilitate P3DM processes.
 - There was increased dialogue between policy makers and community members on natural resource management and building resilience to climate change.
 - Community members, policy makers and technocrats began discussions on various development issues.
 - There was increased inter-generational sharing of knowledge among community members.
 - More than 30 persons from the Soufriere-Scotts Head-Gallion area and wider Dominica built their understanding of land use practices and the impacts of climate change on their livelihoods.
 - More than nine representatives of government agencies built their understanding of the importance of traditional and local knowledge in spatial planning and climate change adaptation decision-making.
 - There was increased community engagement in decision-making.

Implementing partners CANARI (implementing partner)
Caribbean Public Health Agency (CARPHA) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (funding agencies)

Good practice and lessons learned **Regarding adaptation planning**
Good practices:

- Community local knowledge is important in vulnerability assessments and adaptation planning.
- Visual methods can help both community stakeholders and decision-makers to better understand impacts of climate change, assess vulnerabilities and plan for adaptation.
- National adaptation priorities should be communicated in clear language and shared with local communities for buy-in and action.

Lesson learned:

Providing space for local communities and national decision-makers to meet

improves the likelihood that vulnerabilities can be assessed and adaptation actions taken with support of stakeholders.

Regarding knowledge-sharing and training modalities:

Good practices:

- The 3D model remained with the communities so that it could be used in further adaptation planning.
- A guide for using the completed model was prepared for the funding agencies to share with the stakeholders and placed on CANARI's website.

Lessons learned:

Climate change awareness-building should occur often to ensure that stakeholders fully understand the ramifications of the impacts. It also helps to clear up periodic misconceptions.

Further information

- This activity was implemented under the Caribbean Aqua-Terrestrial Solutions Programme (CATS), through its component “Adaptation of Rural Economies and Natural Resources to Climate Change (focus Agriculture, Forestry, Water Management)”. This is funded by The Caribbean Public Health Agency (CARPHA) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- More information on the P3DM project in Dominica: <http://www.canari.org/participatory-three-dimensional-modelling-of-watersheds-for-the-project-adaptation-of-rural-economies-and-natural-resources-to-climate-change>
- CANARI website: <http://www.canari.org/>

9. Participatory research to enhance climate change policy and institutions in the Caribbean:
 Caribbean Adaptation Rapid Institutional Analysis (ARIA) toolkit pilot
 Caribbean Natural Resources Institute (CANARI)

Countries	Adaptation element	Activities
Saint Lucia; Trinidad and Tobago	adaptation planning and practices; communication and outreach/awareness; financial support; institutional arrangements; monitoring and evaluation; capacity building; knowledge management; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity
Thematic areas	Key words	
Ecosystems; Human settlements; Water resources; Human health; Linking local and national adaptation planning	ARIA, institutional readiness, climate change adaptation	

Description of the activities The study, which was conducted in Saint Lucia and Trinidad and Tobago, was implemented by CANARI, in collaboration with the World Resources Institute (WRI) and the Saint Lucia National Trust (SLNT). It was aimed at improving the capacity of Caribbean islands to develop and implement effective climate change adaptation policy and action. The specific objectives were to:

- analyse the state of institutional capacity and readiness to implement climate change adaptation policies to identify strengths and weaknesses using the “Rapid Institutional Analysis for Adaptation” (ARIA) toolkit;
- develop high-priority and low-cost next steps within national and regional policy contexts;
- assess the level of transparency in adaptation policy-making and planning and the opportunities for public involvement;
- conduct “deep dive” assessments into three priority areas selected by project participants for each country to better understand institutional capacity at the sectoral level; and
- build civil society capacity to more meaningfully engage in these processes through use of the toolkit and interaction with relevant government agencies.

The study was conducted in two phases. In Phase I, the lead organisations, SLNT and CANARI, examined the capacity of national institutions to

effectively adapt to climate change in their respective countries. In Phase II, they examined the capacity of the institutional arrangements to effectively adapt to climate change within three priority sectors. The priority sectors were selected in a participatory manner based on the findings of the Phase I research. Information to complete the Adaptation Rapid Institutional Analysis (ARIA) toolkit workbooks in Phases I and II was gathered through desk-reviews and interviews with informants from key agencies knowledgeable about climate change and climate change adaptation initiatives. An advisory panel (comprised of representatives from academia, government, regional and international climate and related institutions, and civil society) was established to carry out multiple functions, including quality control of research, networking for greater impact and engagement, and awareness-raising of results.

Description of the tool or method	The Adaptation Rapid Institutional Analysis (ARIA) toolkit provides civil society organisations with a framework, methodology and approach to assessing national institutional capacities to effectively develop and implement climate change adaptation policy.
Timeline	January 2013 to December 2014 – Knowledge products completed and disseminated in 2015.
Target audience and beneficiaries	Civil society, public and private sector organisations and academia in Saint Lucia and Trinidad and Tobago
Outcomes	<ul style="list-style-type: none"> ▪ Assessment of the state of institutional capacity and readiness to implement climate change adaptation policies at the national and sectoral levels in Saint Lucia and Trinidad and Tobago ▪ Built capacity of the implementing partners, other civil society organisations and public sector agencies to utilise the ARIA toolkit ▪ Created awareness among civil society organisations about the state of institutional capacity and readiness to implement climate change adaptation policies at the national and sectoral levels in Saint Lucia and Trinidad and Tobago ▪ Developed knowledge products for information sharing and advocacy.

CANARI (implementing partner)

Implementing partners Saint Lucia National Trust - conducted the study in Saint Lucia and prepared technical and workshop reports.

World Resources Institute - provided the ARIA toolkit and participated in technical reviews and report writing.

Good practice and lessons learned **Regarding adaptation planning**
Good practices:

- Vulnerability assessments should be directed by national priorities, informed through public consultations.
- A public inventory to monitor the implementation of adaptation options should be created and maintained.
- Coordination bodies for climate change adaptation should be formalised/institutionalised.
- Information collection and management systems need to be consolidated and maintained.
- Mechanisms for greater public participation in the development of priorities and monitoring of policy implementation should be established.
- Innovate financing mechanisms should be developed.

The research process for this project and the subsequent results provided lessons learned such as:

- Knowledge on climate change adaptation processes is not adequately shared among public sector agency personnel.
- Mandates and responsibilities for climate change adaptation procedures among ministries and agencies may be in a state of flux or unclear, even to those within the agencies.
- Significant knowledge gaps persist at the civil society level regarding national climate change adaptation priorities and activities.

Regarding knowledge-sharing and training modalities:

Good practices:

- Technical reports were prepared to disseminate the results and recommendations from the study.
- Policy briefs were prepared and disseminated to advocate for change at the

policy level in Saint Lucia and Trinidad and Tobago.

Lessons learned:

One or two day stakeholder workshops were useful for sharing information and engaging with civil society organisations.

**Further
information**

- See here for information on WRI's Adaptation Rapid Institutional Analysis (ARIA) toolkit: <http://www.wri.org/our-work/project/access-initiative-tai/tools>
- More information on the ARIA project in the Caribbean: <http://www.canari.org/participatory-research-to-enhance-climate-change-policy-and-institutions-in-the-caribbean-aria-caribbean-toolkit-pilot>
- CANARI website: <http://www.canari.org/>

10. Analysis of Socio-Environmental Evolution of the Sauce Grande River Basin, Argentina
 Inter-American Institute for Global Change Research (IAI) - Sensing the Americas' Freshwater
 Ecosystem Risk from Climate Change (SAFER)

Countries	Adaptation element	Activities
Argentina	climate observations; communication and outreach/awareness; socio economic data and information; stakeholder involvement	Meeting workshop

Thematic areas	Key words
Water resources; Ecosystems	Watershed system – water basin management – stakeholders engagement – Participatory Research

Description of the activities The Sauce Grande River basin has a total of 4610 km² starting from the Sierra de la Ventana hill system (highest mountains in the province) and reaching the ocean after an estimated 218 km. The upper, hilly reach extends from its headwaters to the “Paso de las Piedras” Dam. The middle and lower reaches correspond to relatively low gradients with the former representing post-Miocene deposits. Whereas, the lower reach follows very low gradient plains with a sinuous pattern that converge at the Sauce Grande shallow lake. This lake is formed by the damming of the river flow by the coastal dunes. Although the river still follows parallel to the dunes for over 10 km before breaching them and reaching the ocean, water is artificially regulated at the outflow of the lake and, in drought periods, it only conveys the discharge of the Las Mostazas Creek. The main anthropic intervention in the river was the construction of the “Paso de las Piedras” Dam in 1975-78, which is the main source of water to more than 400 000 inhabitants on the Southwest of Buenos Aires Province (Argentina). The major cities of the region, including Bahía Blanca and Punta Alta have direct dependence of the quality of the water conditions. Most of these cities are outside the river basin.

Human activities in the upper basin, specifically illegal damming, unregulated fertilization and irrigation, added to the changes in the water conditions in the dam, everything affected by the strong climate variability that the whole basin is experiencing, resulted in significant conflicts among the stakeholders themselves and also with the decision makers. Even though the river itself and the dam are under the supervision of the Autoridad del Agua (Water Authority), an official institution of the Buenos Aires Province, the territory is divided in

several districts with local, sometimes contradictory regulations. For instance, Bahía Blanca and Coronel Rosales counties, which are outside of the basin, are the main beneficiary of the water intake from the dam. Water usage in both counties is 10 times higher (about 500 l/person/day) the basic requirements considered normal for international agencies. About 20 % of treated water is used in the industries located in Bahía Blanca.

Considering the outgoing conflicts among different stakeholders, and between the stakeholders and decision makers, a Participatory Research Project was carried on to integrate the various parties and to establish common grounds for an integrated management plan for the basin. In order to perform qualitative methodologies belonging to the Participatory Research aimed to achieve a comprehensive understanding of the watershed as a whole, from the perspective of the relevant social subjects acting on the environment was needed:

- To identify the key SH of the basin through a mapping process derived from an exhaustive socio-economic characterization of the study area
- To perform several workshops and meetings addressed to identify problems related to the use of water in the basin in a context of climate change. Using this information as input for performing a Prospective Structural Analysis.
- To generate enough information for designing a water basin management plan including adaptation strategies.

Timeline The project started in March 2014 and finished in December 2015. The final report included:

- Data gathering and analysis
- Modeling
- Socio-economic analysis

Target audience and beneficiaries Local communities, decision makers and authorities.

Outcomes

- Incorporation of qualitative methodologies belonging to the Participatory Research for a particular water basin
- Identification of problems related to the use of water in the basin in a context of climate change
- Prospective Structural Analysis. Identification of main variables and dependence/influence relationships between them.
- Emergence of a dialogue space between stakeholders, decision makers and

scientists addressed to discussing common issues related to climate change and their effects on water resource on the basin

Implementing partners A regional NGO and local stakeholders who collaborate contacting people and giving crucial support to the participatory activities proposed. Local stakeholders and decision makers who unselfishly attended to workshops and meetings.

Good practice and lessons learned **Regarding adaptation planning:**

Main good practices shared during workshops emerged from local and/or traditional knowledge. The alternation of drought and flooding seasons have empowered local people to adapt productive activities to climate conditions.

Further information

- SAFER website: <http://www.safer.conicet.gob.ar/>
- IAI website: <http://www.iai.int/>

11. Biosafety measures and processing of rodent samples during field collections
 Inter-American Institute for Global Change Research (IAI) - Effects of anthropogenic habitat
 perturbation on rodent population dynamics and risk of rodent-borne diseases

Countries	Adaptation element	Activities
Peru	capacity building; education and training; stakeholder involvement	Other

Thematic areas

Human health

Key words

Description of the activities Field collection of rodents is an important part of our research project, but must be done safely. To perform the field collections, we collaborate with a local university (Universidad Nacional de la Amazonía de Madre de Dios - UNAMAD). UNAMAD offers students and other trainees the opportunity to join the field collections to both help provide the necessary labor while allowing them to gain experience. Prior to all field work, all trainees receive basic training on biosafety and rodent collection and sampling techniques. Senior investigators and field hands first give an introduction to the project and objectives, focusing on the study design and the longitudinal nature of data collection. We provided guidance and demonstration in the use of appropriate personal protective equipment (PPE), which participants don, and are then taught how to employ live traps for rodents, including setting the trap, relocating it the field, checking for animals captured, and transportation to the field laboratory. After this initial training, each trainee starts in the field as part of a team, of two, paired with an experienced field worker, to make sure appropriate procedures are followed. Similarly, once animals are captured and brought to the field laboratory, before beginning any lab work, we review the process of safely handling the animals, including necessary PPE, data entering, anesthesia/euthanasia, morphological measurements, blood sampling, necropsy and sample collection, and clean-up and disinfection. Participants again work closely with an experienced member of the team, who demonstrates the required tasks and procedures and then oversees the trainee as the gradually learn to safely perform them. Teams rotate through different work areas to gain experience and acquire skills with the different tasks. The dynamic and hands-on nature of the training also allows for on-site discussion of issues that may rise regarding the objectives of the study and the need for safe and quality data collection, environmental sampling, rodent ecology and conservation concerns.

Timeline	<p>The described activities were performed at the beginning and during each trapping mission undertaken in 2015:</p> <ul style="list-style-type: none"> ▪ 13 Jan - 4 Feb, 2015 ▪ 28 Apr - 20 May, 2015 ▪ 31 Aug - 21 Sep, 2015 <p>Two more field collections with similar training are planned for 2016 in Peru. We hope to work with previously trained personnel as well as to include more students for capacity building.</p>
Target audience and beneficiaries	<p>Local trainees and junior investigators have benefitted directly from this capacity building to further their careers in field research with wild animals.</p>
Outcomes	<p>The trainees and junior investigators that have received this training are from the area (southern Amazon Basin of Peru) are usually very aware and familiar with environmental issues in the region and the need for conservation. However, they may not consider public health risks when performing field work. This training gives them the capacity to perform this type of field work employing appropriate biosafety measures, including PPE and management of potentially contaminated material.</p>
Implementing partners	<ul style="list-style-type: none"> ▪ Naval Medical Research Unit No. 6, Lima, Peru: Field site and trained personnel providing training ▪ Ministry of Health, Puerto Maldonado, Madre de Dios, Peru: Approve planned activities and provide field support and guidance ▪ Natural History Museum from Universidad Nacional Mayor de San Marcos, Lima, Peru: Contributes to training and feedback between the ecological objectives of the study and the biosafety measures that need to be taken ▪ Universidad Nacional de la Amazonía de Madre de Dios, Puerto Maldonado, Peru: Trainees
Good practice and lessons learned	<p>Regarding adaptation planning:</p> <p>The study findings, outcomes, and lessons learned will be presented to the local health and government authorities in Peru in May 2016.</p>

Regarding knowledge-sharing and training modalities:

It was very important to keep the local Ministry of Health informed and involved with the ongoing training activities, as well as getting in touch with the local university. These contacts will provide good dissemination platforms for interested stakeholders and hopefully further demand for this kind of training.

Involving the local university earlier would have perhaps helped to facilitate the implementation of the activities. It would also have been very useful to establish set times during the study years to report to the local Ministry of Health and the local university, possibly in a mixed forum that could encourage discussion. Also, to help build capacity, it would have been good to issue specific invitations for the training to local Ministry of Health personnel involved with zoonotic disease control to enable them to potentially replicate the training as needed for their response activities.

It is also worth mentioning the importance of the active involvement of the communities right from the beginning of the project. Although each community and situation has to be managed individually, careful and close follow-up was essential in order to maintain trust and the interest of the villagers and their local authorities in all the activities proposed and undertaken. This includes taking the time to thoroughly explain the planned activities to the community, asking for their approval, maintaining all our commitments to them, and to seeking their feedback after each activity.

Further information

- More information on the project: <http://raices-ecochangeresearchnet.com/>
- IAI website: <http://www.iai.int/>

12. Qualitative and quantitative data collection and analysis
 Inter-American Institute for Global Change Research (IAI) - Effects of anthropogenic habitat
 perturbation on rodent population dynamics and risk of rodent-borne diseases

Countries	Adaptation element	Activities
Peru	capacity building; education and training; stakeholder involvement; vulnerability assessment	Other

Thematic areas

Human health

Key words

Description of the activities Prior to all fieldwork, students and other junior project participants receive training in both qualitative and quantitative data collection methods. The process includes:

- 1) Introduction and overview by experienced researchers on methodologies for key informants interviews (KIIs) and focus group discussions (FGDs)—two of the main methods employed in our study. The participants acquire the necessary skills regarding interview techniques and leading discussions with FGs, as well as summarizing the data on site.
- 2) Quantitative data collection, including survey methodology and data analysis with appropriate methods and statistical software. Analysis is currently focused on vulnerability to negative health outcomes.
- 3) Online training in ethics in research through the Collaborative Institutional Training Initiative (CITI), resulting in certification of each trainee to perform human subjects research.

As part of the activities, the trainees compiled poster presentations for several scientific meetings, including

the 2014 Climate and Health Summit in Lima, Peru; the 2015 Annual Meeting of the American Society of Tropical Medicine and Hygiene in Philadelphia, USA, and the 2015 Andes Amazon Meeting (BIOCON PERU) in Lima, Peru. Upcoming activities for 2016 are a “Life Plan Workshop” to discuss study findings with local community stakeholders, and the presentation of findings and discussion with local health and government authorities. We will soon also submit a manuscript entitled “Community Perceptions of Health and Rodent-Borne Diseases along the Inter-Oceanic Highway in Madre de Dios, Peru” to a

peer-reviewed journal.

Timeline	Survey preparation: Jan-April 2014 KII and FGD training and survey application: May 2015 Quantitative data analysis: Aug 2015-ongoing Life Plan Workshop and dissemination activities: May 2016
Target audience and beneficiaries	Local trainees and junior investigators have benefitted directly from this capacity building to further their careers in field research with wild animals.
Outcomes	Trainees that have participated in this process have learned skills for qualitative and quantitative data collection, survey preparation, ethics issues, data analysis and manuscript and abstract writing for international meetings. They are currently involved in data analysis focused on vulnerability to negative health issues in the study communities and in the coming months they will also participate in the Life Plans Workshops and local dissemination of findings with community stakeholders and government officials.
Implementing partners	<ul style="list-style-type: none">▪ Tulane University, New Orleans, USA: Experience personnel providing training▪ Naval Medical Research Unit No. 6, Lima, Peru: Field site and logistical support▪ Ministry of Health, Puerto Maldonado, Madre de Dios, Peru: Approved planned activities and provided field support and guidance
Good practice and lessons learned	<p>Regarding adaptation planning:</p> <p>The study findings on vulnerability to negative health issues will be shared with the community through a Life Plans Workshop and also disseminated to other community stakeholders and government officials.</p> <p>Regarding knowledge-sharing and training modalities:</p> <p>We maintained an open channel with the local Ministry of Health regarding</p>

ongoing activities and findings.

The project would have benefitted from a more dynamic information sharing process with the local Ministry of Health and other local stakeholders. Timely feedback from the local health posts and the local Ministry of Health as well periodic reporting to a specific point of contact within these institutions would have made this process easier. It is worth mentioning the importance of the active involvement of the communities right from the beginning of the project. Although each community and situation has to be managed individually, careful and close follow-up was essential in order to maintain trust and the interest of the villagers and their local authorities in all the activities proposed and undertaken. This includes taking the time to thoroughly explain the planned activities to the community, asking for their approval, maintaining all our commitments to them, and to seeking their feedback after each activity.

**Further
information**

- More information on the project: <http://raices-ecochangeresearchnet.com/>
- IAI website: <http://www.iai.int/>

13. Development of a georeferenced inventory on EbA projects for Panamá, Costa Rica, El Salvador, Honduras, Guatemala and Chiapas

International Union for Conservation of Nature (IUCN) - Regional Office for Mexico, Central America and the Caribbean

Countries	Adaptation element	Activities
Panama; Costa Rica; El Salvador; Honduras; Guatemala; Mexico	adaptation planning and practices; communication and outreach/awareness; knowledge management	Knowledge product
Thematic areas		Key words
Ecosystems; Water resources		
Description of the activities	An inventory of projects that will be disseminated in a SIG is being developed. Projects in the inventory have a focus on EBA but other adaptation with conservation actions are also being documented.	
Timeline	The activity started in 2015 but it will be finalized in June 2016.	
Target audience and beneficiaries	Decision makers at the national level and international level.	
Implementing partners	Bundesumweltministerium/ International Klimaschutzinitiative (BMUB/IKI).	
Further information	<ul style="list-style-type: none"> ▪ IUCN website: http://www.iucn.org/ 	

14. Regional Conservation Forum held in Panama: Workshop, Design of a Coastal Marine Adaptation planning tool
 International Union for Conservation of Nature (IUCN) - Regional Office for Mexico, Central America and the Caribbean

Countries	Adaptation element	Activities
	adaptation planning and practices; communication and outreach/awareness; knowledge management	Meeting workshop; Knowledge product; Other
Thematic areas	Key words	
Ecosystems		
Description of the activities	The activity gathered organizations and end-users working on coastal management to draft a biodiversity and ecosystems tool that uses climate information for better decision making.	
Timeline	September 2015. This activity is part of the Regional Climate Change Program funded by USAID. The final tool will be ready on 2016. A communication strategy is being developed to disseminate the use of this tool with users from Central America and Dominican Republic.	
Target audience and beneficiaries	Coastal and marine planners as well as coastal municipalities.	
Outcomes	Strategic inputs from real end users for designing the potential tool.	
Implementing partners	United States Agency for International Development (USAID), Cousteau Observatory in Central America, Centro Agronomico Tropical de Investogación y Ensenanza (CATIE), Development Alternatives Inc. (DAI).	
Further information	<ul style="list-style-type: none"> ▪ IUCN website: http://www.iucn.org/ 	

15. On ground implementation of Ecosystem based Adaptation measures in a protected area in Peru (linking local and national adaptation planning)

International Union for Conservation of Nature (IUCN) - Regional Office for South America

Countries	Adaptation element	Activities
Peru	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; monitoring and evaluation; socio economic data and information; capacity building; education and training; stakeholder involvement; vulnerability assessment	Meeting workshop; Capacity building activity
Thematic areas	Key words	
Ecosystems; Water resources; Linking local and national adaptation planning	Ecosystem based Adaptation, participatory planning, climate change adaptation, protected areas	

Description of the activities IUCN and its partner, The Mountain Institute (TMI), are implementing Ecosystem-based Adaptation (EbA) measures in two local communities within the Nor Yauyos Cochabambas Biosphere Reserve, a national protected area managed by the National Service of Natural Areas Protected by the State (SERNANP). The EbA measures were selected using a participatory methodology, and a process to analyse, design and validate the options through multi-stakeholder participation. The EbA measures encompass a range of ecosystem management activities to increase resilience and reduce the vulnerability of local people and the environment to climate change. The measures being implemented include: a) sustainable water and grassland management, where upper microwatersheds, wetlands, water courses, and their associated vegetation (mainly grasslands) are managed to provide water storage, groundwater recharge and regulation services, and b) community based sustainable native grassland management to enhance pastoral livelihoods and increase resilience to extreme climatic events. These activities aim to support integrated sustainable land management and the enhancement of both the ecosystem services and the livelihoods of the communities.

Description of the tool or method	<p>Several actions and (participatory) methods were used to select, analyse, design and validate the EbA measures through a multi-stakeholder process. An Integrated Participatory Rural Appraisal (IPRA) using a participatory action research approach took place.</p> <p>Each community selected a team of local researchers to participate in the IPRA together with a team of external experts</p> <p>(anthropologist, agronomist, archaeologist, hydrologist and pasture specialist), led by a scientific coordinator. The teams of local researchers included reserve staff belonging to both communities.</p> <p>The main results of the IPRA were the design of the EbA measures and an agreement on the planning process for their implementation. The results of this process were validated with SERNANP and discussion focused on how to incorporate aspects related to CCA and EbA into the Master Plan for the reserve, currently in the process of being updated, as a way to link field activities with the PA planning and budgeting process.</p>
Timeline	<p>The EbA measures implementation started in 2013 and will be finishing at the end of 2015 (IUCN participation in the project will finish at December 2015), however the idea is that the local communities and the reserve authorities continue their implementation with targeted support during 2016.</p>
Target audience and beneficiaries	<p>Local stakeholders, local and regional authorities, national (SERNANP/Ministry of Environment) authorities, CC researchers, practitioners and decision makers.</p>
Outcomes	<p>The project has achieved two main outcomes: a) the engagement and capacities of the local communities and reserve staff in the process of building ‘robust’ adaptation measures, including awareness of their main vulnerabilities and needs in a changing environment and b) the selection and design of two no-regret measures that are being implemented together with local stakeholders in each community.</p> <p>The EbA measures participatory design and implementation, and the inclusion of CCA and EbA aspects into the Master Plan for the reserve, was taken by SERNANP as a pilot experience to feed other PAs planning and budgeting process.</p>

Implementing partners The Mountain Institute, Patronato Reserva Paisajistica Nor Yauyos Cochas and SERNANP/Ministry of Environment.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

Good practices:

a) Working with a guiding framework of a socio-ecological systems approach, proposing that the landscape and their management are the result of joint environmental and social processes; b) Participatory approaches and methodologies (adapted or created) were applied in all the process allowed building relationships of trust with the communities, their empowerment in the design and implementation of the measures; c) Facilitating a knowledge dialogue (local and scientific knowledge), which was crucial for proper design of the no-regret measures, integrating local interests and perceptions on vulnerability into the planning process, in addition to the technical expertise.

Lessons learned:

Overall, the project has shown the importance of: a) building trust and understanding with the communities by working with them on the analysis of ideas to address climate change vulnerabilities; b) building local adaptive capacities (including those of the reserve) and strengthening community-based institutional arrangements; c) having a multidisciplinary team comprised of local stakeholders and external experts involved in defining the no-regret measures by analyzing pre-selected measures and their potential social and environmental impacts; d) using participatory approaches in the planning, design, validation and implementation phases, which has been key to delivering bottom-up activities that empower and enhance the local communities' ownership; and, e) ensuring diverse multi-stakeholder participation at different levels, including not only the direct stakeholders (i.e. the communities and the reserve), but also others such as the municipalities, which will ensure the sustainability of the EbA measures.

Further information

- More information on the project:
http://iucn.org/es/sobre/union/secretaria/oficinas/sudamerica/sur_proyectos/?11615/AbEPeru
- IUCN website: <http://www.iucn.org/>

IV. North America

1. Water Security Workshop in Hermosillo, Sonora, Mexico

Inter-American Institute for Global Change Research (IAI) - AQUASEC – Center for Excellence in Water Security

Countries	Adaptation element	Activities
Mexico	adaptation planning and practices; climate observations; financial support; institutional arrangements; monitoring and evaluation; capacity building; education and training; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop

Thematic areas	Key words
Water resources; Ecosystems; Human settlements; Linking local and national adaptation planning	Water security, climate change adaptation, vulnerability assessment, desalination, stakeholder participation

Description of the activities The Colegio de Sonora hosted a workshop in Hermosillo, Sonora, Mexico of water security research projects. Partners from the University of Arizona attended this event, where graduate students presented their work progress.

Description of the tool or method Tools and methods include the evaluation and monitoring of ecological systems after a mine spill in the Rio Sonora, stakeholder participation focusing on watershed councils, the case-study of lack of stakeholder inclusion in the institutional arrangements for a wastewater plant, the climate observations by local farmers in a watershed, and the monitoring of climate change adaptation strategies by farmers in an agricultural district of the Yaqui Valley.

Timeline The workshop was held on August 20 and 21, 2015.

Target audience and beneficiaries This workshop was not open to the public. The participants included students from El Colegio de Sonora, faculty members from El Colegio de Sonora, and partners from the University of Arizona. It was intended for the undergraduate

and graduate students to report their work progress to the sponsor organizations.

Outcomes The outcomes of this activity include knowledge sharing mainly for education and training purposes on science and research.

Implementing partners The lead institution was El Colegio de Sonora, which is a research-based educational institution in Mexico. Partners include researchers from the Udall Center for Studies in Public Policy in the University of Arizona.

Good practice and lessons learned **Regarding adaptation planning:**

Good practices shared included a case study where they presented monitoring and evaluation of ecosystems and its relationship to vulnerability assessment.

A key lesson learned during the workshop is the need to include all stakeholders in the decision-making process at all levels. This lesson was mainly evident during the presentation by a faculty member of El Colegio de Sonora that studies the role of watershed councils in the decision-making process, and also during the discussion session following the presentation made by a graduate student on the challenges faced by city officials to build a wastewater treatment plant, where residents protests have resulted in changing the location of the plant.

Further information

- More information on the workshop: <http://aquasec.org/water-security-workshop-hermosillo-mexico/>
- IAI website: <http://www.iai.int/>
- AQUASEC website: <http://aquasec.org/>

2. Global Adaptation Network workshop and Ecosystem-based Adaptation symposium at National Adaptation Forum
 United Nations Environment Programme (UNEP), Regional Office for North America

Countries	Adaptation element	Activities
	adaptation planning and practices; communication and outreach/awareness; technology support; education and training; knowledge management; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop

Thematic areas

Key words

Ecosystems; Human settlements

Description of the activities UNEP co-sponsored the U.S. National Adaptation Forum (NAF) and hosted a set of events at the forum. The main goals of the NAF were to: 1) provide a professional development opportunity for adaptation practitioners, 2) contribute to the development of a community of practice around climate change adaptation, 3) create a venue for practitioners to share information, progress and strategy together, building capacity of the community as a whole and the individual, and 4) support on the ground implementation by providing managers and regional experts with a venue to exchange knowledge of and tools for incorporating climate change into their work.

Description of the tool or method EbA
 GAN - Regatta etc

Timeline 11-14 May 2015

Target audience and beneficiaries Government, practitioners, civil society, academia and private sector.

Outcomes There were over 800 registered participants at the NAF, and UNEP was able to interact with many of them through our workshop and symposium, as well as through our booth, in which key reports and information were shared, and useful contacts were made.

The workshop was very well attended, with approximately 45 participants: It ended with a set of defined criteria for UNEP-GAN to consider in engaging with the North American region.

The Ecosystem-based Adaptation symposium brought together key practitioners from various organizations to discuss the benefits and limitations of protecting and/or restoring ecosystems to achieve climate adaptation goals.

The session was attended at full room capacity (about 30 people) and included sufficient time for an engaging discussion between speakers and the audience, many of whom were also practitioners in the EbA/Natural Infrastructure arena.

Implementing partners Workshop partners with speaker or facilitator roles included Robert Kay, Director of Adaptive Futures, Susanne Moser, Director and Principal Researcher of Susanne Moser Research & Consulting, and Jessica Hitt, Managing Director of Climate Adaptation Knowledge Exchange at EcoAdapt, and Laurel Hunt from the Mediterranean City Climate Change Consortium.

Symposium partners with speaker or facilitator roles included Greg Guannel, Urban Conservation Director for The Nature Conservancy. Stacy Small-Lorenz, Climate Change Adaptation and Resilience Specialist at the National Wildlife Federation, and Adrienne Antoine, Program Manager for the Coastal and Ocean Climate Applications (COCA) program at NOAA.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities:**

Lessons shared revolved around the benefits and limitations of protecting and/or restoring ecosystems to achieve adaptation goals. The session increased understanding of the scientific and empirical evidence of the effectiveness and benefits of EbA, demonstrated the move from EbA principles to practice, provided evidence-based guidance on the design and implementation of EbA activities, and discussed the constraints and limitations of EbA in practice.

**Further
information**

- More information on the National adaptation Forum:
<http://www.nationaladaptationforum.org/>
- UNEP website: <http://www.unep.org/>

V. Multiregional

1. International Water Security Network Meeting Inter-American Institute (IAI) AQUASEC - Center for Excellence in Water Security

Countries	Adaptation element	Activities
China; Nepal; South Africa; Peru; Mexico; Chile; Argentina; United States of America	adaptation planning and practices; climate observations; communication and outreach/awareness; institutional arrangements; socio economic data and information; capacity building; climate scenarios; education and training; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop
Thematic areas	Key words	
Water resources; Ecosystems; Linking local and national adaptation planning; Human settlements	Water security, scenario planning, participatory engagement, resilience, science-policy dialogues.	
Description of the activities	Partners from the International Water Security Network (IWSN) reunited in September 2015 for a three-day annual meeting—this time in Tucson, Arizona, hosted by the Udall Center for Studies in Public Policy at the University of Arizona (UA).	
Description of the tool or method	A tool for adaptation planning was scenario planning. This tool allows a range of future possibilities (scenarios) to be integrated into decision-making.	
Timeline	September 15-17, 2015. This is an annual meeting part of the International Water Security Network (IWSN).	
Target audience and	The target audience was Tucson city officials, partners, faculty members from	

beneficiaries the University of Arizona, and graduate students.

Outcomes Key outcomes include the capacity building of city officials, training of graduate students, and knowledge sharing between multiple research projects from several countries.

Implementing partners The gathering assembled members from the three main institutions—the University of the West of England (UWE), Monash University – South Africa (Monash), and the UA—as well as international partners and stakeholders to discuss the progress of IWSN research and related projects.

Good practice and lessons learned **Regarding adaptation planning**

Most of the presentations given during this workshop showed good practices in relation to adaptation planning including: (1) transboundary watersheds in Peru that face different water security challenges because of the different land uses, (2) stakeholder participation in decision-making in Mexico, (3) hydroclimatological needed information in the Andean region to engage local stakeholders in science-policy dialogues, (4) qualitative assessment in of community resilience in Nepal after an earthquake, (5) sanitation innovations in China, (6) outreach projects and collaborative research programs in South Africa, (7) water conservation efforts in the City of Tucson, (8) participatory engagements and the effectiveness of these engagements, (9) monitoring pollution and lake levels in a lake in Indian reservations, and (10) scenario planning.

Key lessons learned include: the need to consider all stakeholders in the decision-making process, the need to monitor in order to facilitate evaluation of outcomes, the need to consider scenarios in order to make decisions in uncertain future conditions.

Regarding knowledge-sharing and training modalities :

We timed the presentations, so that time was managed effectively and there was enough time for questions and answers at the end of each presentation. Also, we had a social event and a field trip that was part of this event, so people could get to know each other a little better. This practice is very helpful for future collaborations.

**Further
information**

- More information on the meeting: <http://aquasec.org/international-water-security-meeting/>
- IAI website: <http://www.iai.int/>
- AQUASEC website: <http://aquasec.org/>

2. Global network of basins working on climate change adaptation
 United Nations Economic Commission for Europe (UNECE)

Countries	Adaptation element	Activities
	adaptation planning and practices; communication and outreach/awareness; financial support; institutional arrangements; capacity building; climate scenarios; education and training; knowledge management; science and research; stakeholder involvement; vulnerability assessment	Meeting workshop; Knowledge product

Thematic areas	Key words
Water resources; Linking local and national adaptation planning	Adaptation to climate change, transboundary, data and information sharing, monitoring, legal instruments, awareness, participatory approach, strategy, vulnerability assessment, adaptation plan

Description of the activities The global network of basins working on climate change adaptation includes 14 basins (Amur/Argun/Daursky Biosphere Reserve, the Chu-Talas, Congo, Danube, Dniester, Drin, Mekong, Meuse, Niger, North-Western Sahara Aquifer System, Neman, Rhine, Sava and Senegal Basins) and aims to promote cooperation on adaptation in (transboundary) basins, to compare different methodologies and approaches for adapting to climate change and promote a shared vision between the participating basins. While the different basins primarily work on their adaptation activities themselves in accordance with the agreed decisions of their governing bodies or with the terms of reference of international projects, joining the network allows for the exchange of experience, learning from each other, establishing contacts between basins and their experts, discussing challenges and lessons learnt etc. The network includes annual meetings of all basins, regular larger workshops and other ways of exchanging experience, depending on interest, demand and resources.

Activities in 2015:

- exchanging experiences through the Internet platform
- a publication Adaptation to climate change in transboundary basins: lessons learned and good practices (63 lessons learned and 58 case studies)

- A session on adaptation to climate change in transboundary watercourses at the World Water Forum (Republic of Korea, April 2015)
- Presentation at the World Water Week (Stockholm, August 2016)
- Several presentations during the COP 21 (Paris, December 2015)
- Pilot projects on adapting water management to climate change in the transboundary Dniester and Neman (Eastern Europe) and Chu and Talas (Central Asia), and Amur/Argun (Asia) river basins
- Other interested basins invited to join.

Description of the tool or method

- Clearing house mechanism
- Climate change adaptation strategy
- Joint integrated assessment
- Ecosystem restoration
- Technical innovations and agricultural development
- Legal framework for transboundary watercourses
- Communication and networking for adaptation strategies
- Quantifying water
- Engaging children in climate change adaptation discussion and measures
- Data and model harmonization, development of geoportals and monitoring data sharing portals.

Timeline

Throughout the year, started in 2013.

Target audience and beneficiaries

Professionals in transboundary water management and climate change adaptation from around the world.

Outcomes

The global network, information platform and the publication are a clearing house mechanism, supporting the professionals in sharing their experience, lessons learned and case studies in adaptation to climate change. These activities have contributed to increased awareness of the importance of transboundary cooperation in climate change adaptation and provided inputs to other political platforms, events and processes.

Participation in various events enabled exchanging experience and lessons learned between the basins through presentations and practical exercises focusing on developing an adaptation strategy.

The global network and in particular the pilot projects strengthened the capacity of countries and basins to adapt to climate change and created positive examples demonstrating the benefits of and possible mechanisms for

transboundary cooperation on adaptation. This involved the development of transboundary climate change impact and vulnerability assessments, as well as the preparation of strategic frameworks for some basins. In the Dniester Basin some adaptation measures have been implemented, such as the planting of trees and ecosystem restoration. This progress is particularly notable as in some pilot basins there were no established institutional and legal mechanisms or frameworks for transboundary water cooperation.

Implementing partners United Nations Economic Commission for Europe (UNECE), International Network of Basin Organizations (INBO). Input from partners such as WMO, AGWA, SIWI, GWP, and IUCN.

Good practice and lessons learned **Regarding knowledge-sharing and training modalities :**

- How to develop a transboundary adaptation strategy (Neman and Dniester basin as well as Rhine and Danube) and how to link it to the national level
- How improved reservoir management can support climate change adaptation (Dniester)
- How cooperation on climate change adaptation can support transboundary cooperation in general (Neman basin)
- How local populations and youth can be involved in climate change adaptation measures
- Which adaptation measures can be useful from a transboundary perspective and how they can be prioritized (Neman, Dniester).

Lessons learned

1. Transboundary cooperation results in more efficient and effective adaptation, it allows:

- Broadening from technical to transboundary cooperation
- Pooling resources
- Enlarging the planning space for implementing adaptation measures

2. Preparing an adaptation strategy is a long process involving many stakeholders

3. There is a need to reach out to other sectors, but this is very difficult

4. New emerging topics:

- Interrelation adaptation vs mitigation
- Disaster Risk Reduction vs adaptation
- In most basins, some climate change impact assessments had already been done nationally, but using different methodologies: importance of joint scenarios, modelling and vulnerability assessment, but extent of harmonization depends on resources and time available
- Importance of thorough baseline study to identify completed or ongoing projects and relevant partners to be involved
- Importance of link between political and experts' level, e.g. through creation of a working group and regular meetings
- Institutional and cultural differences can be overcome through focusing on common interests, expert cooperation etc.
- Importance of concrete activities and involving population
- Importance and difficulty to link to national level, need for coordination and mainstreaming.

Further information

- Publication “Adaptation to climate change in transboundary basins: lessons learned and good practices” (63 lessons learned and 58 case studies), see http://www.unece.org/fileadmin/DAM/env/water/publications/WAT_Good_practices/ece.mp.wat.45.pdf
- Pilot projects on adapting water management to climate change in the transboundary Dniester and Neman (Eastern Europe) and Chu and Talas (Central Asia), and Amur/Argun (Asia) river basins <https://www2.unece.org/ehlm/platform/display/ClimateChange/Welcome>
- UNECE webpage on water and climate adaptation : http://www.unece.org/env/water/water_climate_activ.html
- UNECE website: <http://www.unece.org/>

3. Publication “Adaptation to climate change in transboundary basins: lessons learned and good practices”

United Nations Economic Commission for Europe (UNECE)

Countries	Adaptation element	Activities
	adaptation planning and practices; climate observations; communication and outreach/awareness; socio economic data and information; knowledge management	Knowledge product
	Thematic areas	Key words
	Water resources; Linking local and national adaptation planning	Adaptation to climate change, transboundary, data and information sharing, monitoring, legal instruments, awareness, participatory approach, strategy, vulnerability assessment, adaptation plan
Description of the activities	The publication is a joint product of the UNECE and the International Network for basin Organizations (INBO). It includes 63 lessons learned and 58 case studies. 80 experts worldwide contributed to the publication.	
Description of the tool or method	<ul style="list-style-type: none"> ▪ UNECE Guidance on Water and Adaptation to Climate Change ▪ Climate change adaptation strategy ▪ Joint integrated assessment ▪ Ecosystem-based adaptation and ecosystem restoration ▪ Technical innovations and agricultural development ▪ Legal framework for transboundary watercourses ▪ Communication and networking for adaptation strategies ▪ Quantifying water ▪ Engaging children in climate change adaptation discussion and measures ▪ Data and model harmonization, development of geoportals and monitoring data sharing portals 	
Timeline	Launched in April 2015 at the World Water Forum	

Target audience and beneficiaries The target audience of this publication includes all those working on adaptation to climate change in transboundary, but also national, basins, including joint bodies, such as basin commissions and other institutions for transboundary cooperation, as well as the national representatives in such joint bodies; developers of adaptation strategies, especially in transboundary basins; decision makers; specialists working on water and/or climate change in ministries; and other authorities, scientists and NGOs.

Outcomes Publication compiled and widely distributed.

Implementing partners United Nations Economic Commission for Europe (UNECE), INBO. Input from partners such as WMO, AGWA, SIWI, GWP, IUCN, OECD, GIZ, OSCE and Zoï Environment Network

Good practice and lessons learned **Regarding knowledge-sharing and training modalities :**

- 58 case studies (good practices) from 14 river basins are described in the publication. The case studies range from those enabling conditions for transboundary adaptation in water resources management (policy, legal and institutional framework, etc.) to a process of developing an adaptation
- Strategy (assessing vulnerability, prioritizing measures and identifying sources of financing); data and information sharing; development and prioritization of measure.

Lessons learned

The 63 lessons learned give advice on how to develop a joint adaptation strategy in transboundary basins, while recognizing that there are differences in the level of progress in transboundary cooperation and climate change adaptation in different basins. The recommendations presented in the lessons are neither meant to be comprehensive, nor prescriptive or universally applicable, but rather supportive and based on on-the-ground experience. The key messages are:

- Adaptation within a transboundary basin is a challenge, as it requires strong cooperation between the riparian countries on a cross-cutting issue that demands attention at all levels and across all. On the other hand, transboundary cooperation can enable more efficient and effective

adaptation, by pooling available data, models, scenarios and resources and enlarging the planning space for locating adaptation measures.

- Proper institutional arrangements are essential for transboundary cooperation.
- Uncertainty about future impacts requires a flexible policy, such as a transboundary agreement
- Capacity development is needed for a common understanding.
- Decision makers need to be involved in the adaptation process from the beginning.
- Proper communication is important to allow transboundary cooperation.
- An adaptation plan (national or transboundary) at the basin scale should be developed.
- A vulnerability assessment is especially important at the transboundary basin scale and should be relevant to decision-making and be seen as an ongoing process.
- Comprehensive information and data from the entire basin are needed for developing the strategy and the scenarios and to identify the vulnerabilities and impacts.
- Based on the scenarios and the vulnerability and impact assessments, a set of adaptation measures may be proposed, combining structural and non-structural measures.
- Basin-wide adaptation strategies should prioritize adaptation measures beneficial from the basin perspective and avoid measures that transfer vulnerability within the basin to another location.
- It is important to ensure synergies and linkages between adaptation actions at different government levels (local, national, regional, transboundary) and between different (economic) sectors.
- It is recommended to take mitigation aspects into account when developing adaptation measures and vice versa.
- Adaptation strategies, measures and plans should be developed in a flexible way so that they can be adapted according to the changing climate and socioeconomic conditions.
- Due to the high uncertainty associated with climate change impacts, it is useful to implement low- or no-regret measures even when there is still some uncertainty about the climate change impacts, i.e., to start reducing vulnerability while impact assessments are still ongoing.
- Transboundary cooperation on adaptation usually starts at a technical, or expert, level, but can later positively influence cooperation in general, also at a political level.

**Further
information**

- Link to the publication:
UNECE, 2015, Water and Climate Change Adaptation in Transboundary Basins: Lessons Learned and Good Practices, Geneva, 104 p. :
<http://www.unece.org/index.php?id=39417&L=0>
- UNECE website: <http://www.unece.org/>

4. The Second workshop on transboundary flood risk management
 United Nations Economic Commission for Europe (UNECE)

Countries	Adaptation element	Activities
	adaptation planning and practices; climate observations; socio economic data and information; Other; capacity building; education and training; knowledge management; vulnerability assessment	Meeting workshop; Knowledge product; Capacity building activity

Thematic areas	Key words
Water resources	Flood risk management, flood forecasting, river basins, water, adaptation, case studies, flood risk management planning

Description of the activities The Second workshop on transboundary flood risk management was held from 19-20 March 2015 in Geneva with the aim to bring together professionals from all over the world working on transboundary flood risk management and to provide a platform to:

- Exchange experiences concerning the latest developments and the progress made in the transboundary case studies since the 2009 Workshop;
- Identify relevant problems, successful strategies for transboundary flood risk management and new cooperation models and develop new ideas and approaches;
- Present best practice examples of successful transboundary cooperation on flood risk reduction and management;
- Analyse lessons learned from the latest flooding events in 2013 and 2014;
- Consider the experiences made in the European Union during the implementation of the EU Floods Directive and the current work on flood risk management plans; and
- Review and update the recommendations of the 2009 workshop
- The workshop brought together over 50 participants from 26 different countries and 5 international, intergovernmental organisations. The presentations introduced the participants to a wide range of approaches to flood risk management and highlighted the different stages countries currently are in with regards to establishing transboundary cooperation on flooding. While problems are similar across the world, the extent to which they are tackled are different due to financial, and political constraints;

solutions for floods are therefore also different.

Description of the tool or method	<ul style="list-style-type: none">▪ Flood forecasting▪ Flood risk mapping▪ Flood risk management plans▪ UNECE Guidelines on Sustainable Flood Prevention▪ UNECE Model Provisions on transboundary flood risk management
Timeline	March 19-20, 2015
Target audience and beneficiaries	Flood risk management professionals from around the world.
Outcomes	<ul style="list-style-type: none">▪ According to the workshop evaluation, capacity of participants to understand and address flood risks has increased and majority of participants reported that the knowledge and skills obtained at the workshop will be extremely or very useful for their future work.▪ A workshop report based on discussions and presentations during the workshop and on case studies collected prior to the workshop was developed and disseminated.
Implementing partners	United Nations Economic Commission for Europe (UNECE), the Government of Germany, the Government of the Netherlands and the World Meteorological Organization (WMO)
Good practice and lessons learned	<p>Regarding knowledge-sharing and training modalities :</p> <p>A number of good practices on flood risk management from 14 river basins were shared, including in the following areas: flood forecasting, flood risk management measures, flood risk management planning, institutional arrangements on flood risk management</p> <p>The main recommendations for improving transboundary flood risk management are:</p>

1. Climate change will influence the frequency, magnitude and “type” of flooding: There is an increasing need to include climate change into (transboundary) planning approaches to enable adaptation to increasing risks.
2. Flood risk management cannot stand alone: Flood risk management plans should not be developed in a vacuum. They should be linked to terrestrial and coastal spatial management plans to ensure that future development takes into account flood risks. Flood protection should also be linked to with ecological/recreational objectives.
3. Data sharing is crucial: The sharing of data is a crucial point in transboundary flood risk management, and especially important for forecasting and early warning.
4. Flexibility in methods and data is necessary: flood regimes change over time, especially if climatic changes are considered. It is therefore necessary to enable the possibility to revise the flood forecasting system.
5. Climate change will influence the frequency, magnitude and “type” of flooding: There is an increasing need to include climate change into (transboundary) planning approaches to enable adaptation to increasing risks.
6. Flood risk management cannot stand alone: Flood risk management plans should be linked to terrestrial and coastal spatial management plans to ensure that future development takes into account flood risks.
7. One option does not fit all: It is important to find the best mix of structural and non-structural measures, e.g. structural measures to protect urban areas combined with emergency planning and flood proofing.
8. Identifying flood risk measures to take is important but political/technical/operational issues still need to be solved. Political willingness to address the issue is paramount to receiving enough attention to be included in national budgets and capacity to develop technical measures and implementation is needed to ensure the right measures are taken up in the right places within a catchment.
9. Find the common interest and find the right process among the parties: Transboundary cooperation is essential to mitigate flood damages across borders. Finding a common interest – like reducing economic damages from floods – is an important trigger for establishing coordination mechanisms.
10. Opportunities should be sought for synergies with other sectors. Flooding impacts all types of sectors and the implementation of measures may impact sectors (positively by reducing flooding) or negatively (in the eyes of the sector) by restricting economic activities in certain areas. By including sectors in the planning, the planning process is transparent and less resistance may be

met when implementing the flood management plans.

11. It is useful to combine capacity-building events with a field visit.

**Further
information**

- UNECE Guidelines on Sustainable Flood Prevention <http://www.unece.org/fileadmin/DAM/env/water/publications/documents/guidelinesfloode.pdf>
- More information on the workshop: http://www.unece.org/env/water/workshop_flood_risk_management_2015.html#/
- UNECE website: <http://www.unece.org/>

5. Climate change and health in the Eastern Mediterranean Region: a systematic review
 World Health Organization/ Eastern Mediterranean Regional Office/ Centre for
 Environmental Health Action (WHO/EMRO/CEHA)

Countries	Adaptation element	Activities
Iran (Islamic Republic of); Pakistan; Saudi Arabia; United Arab Emirates; Lebanon; Syrian Arab Republic; Jordan; Afghanistan; Yemen; Kuwait; Sudan; Tunisia; Somalia	adaptation planning and practices; communication and outreach/awareness; science and research; vulnerability assessment	Knowledge product

Thematic areas	Key words
Human health, ecosystems	heat waves; humidity; meteorological factors; morbidity; mortality; precipitation; vector diseases, water & food borne diseases; respiratory diseases; food insecurity; mental health

Description of the activities To summarize the existing knowledge of the impact of climate change on health from previous research in the Eastern Mediterranean region (EMR) and identify knowledge and research gaps.

Different databases were searched for relevant studies published in the region between 2000 and 2014.

- The review was limited to studies reporting the impacts of climate change on health or studying associations between meteorological parameters and well-defined human health outcomes.

Timeline December 2014- July 2015

Target audience and beneficiaries Researchers, public health community, climate change community

Outcomes This systematic review of 78 studies identified many knowledge and research gaps. Research linking climate change and health is scarce in the most vulnerable countries of the region. There is limited information regarding how changes in temperature, precipitation and other weather variables might affect the geographic range and incidence of mortality and morbidity from various diseases. Available research has many limitations and shortcomings that arise from inappropriate study designs, poor assessment of exposure and outcomes, questionable sources of data, lack of standardized methods, poor adjustment of confounders, limited geographical area studies, small sample sizes, poor statistical modeling and not testing for possible interactions between exposures.

Research and information on the effect of climate change on health are limited. Longitudinal studies over extended periods of time that investigate the link between climate change and health are needed. There is a need for studies to be expanded to include more countries in the region and to include other environmental, social and economic factors that might affect the spread of the disease.

Implementing partners Faculty of Medicine, Department of Public Health, Jordan University of Science and Technology

Further information

- Full text or the published article and the full report of the assessment will be posted on WHO/EMRO/CEHA web site.
- Reference of the publication:
Khader Y.S. et al, 2015, “Climate change and health in the Eastern Mediterranean Region: a systematic review”, *Reviews on Environmental Health*, vol. 30, issue 3, pp. 163-181:
<http://www.degruyter.com/view/j/reveh.2015.30.issue-3/reveh-2015-0013/reveh-2015-0013.xml>
- WHO website: <http://www.who.int/en/>
- EMRO website: <http://www.emro.who.int/index.html>
- CEHA website: <http://www.ceha.org/>