COLUMBIA UNIVERSITY
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THE EARTH INSTITUTE

International Research Institute for Climate and Society

Submission to the Nairobi Work Programme

approaches, strategies, practices and technologies for adaptation

Type of adaptation action[1]	**Title of adaptation action, including projects**	**Status of adaptation action** - ongoing - under implementation - under development - under consideration	**Needs in order to successfully implement the adaptation action**	**Concerns/ Barriers**	**Experiences/ Lesson learned**	**References** i.e. publications, websites etc.
Scope of adaptation action ***Regional level***						
Approaches/ strategies						
Practices	Forecast improvement: Regional Climate Outlook Forum, Africa; Training for Climate Forecasters	Ongoing	Access of Met Services to international datasets. Capacity building of climate scientists to produce reliable and timely climate information,, and communicate climate information to sectors in an understandable form. Improved understanding by climate scientists of uncertainty in the climate information ability to communicate it effectively.	Lack of adequate climate data in some countries. Poor quality of seasonal climate forecasts to date may undermine sectoral confidence. High turnover rate of climate scientists at training workshops.	Need to tailor climate information to specific sectoral requirements – climate information must be demand driven. Need to support countries to provide regular updates to climate information.	http://iri.columbia.edu/outreach/publication/iri report/PretoriaSumRpt2.html

[1] Please be aware of the degree of adaptation within activities:

- Some activities are undertaken specifically to adapt to climate change, e.g. increased water storage capacity, development of new crop varieties.
- Some activities include a component of climate change adaptation, e.g. infrastructure replacement incorporating higher flood standards
- Some activities are not carried out for adaptation but have other objectives such as preserving biodiversity, however they can offer adaptation co-benefits, e.g. restored wetlands protect against storm surges.

			Improved reliability of climate information. Evaluation of quality of climate information.			
Practices	Malaria Control Decision Support: Malaria Outlook Forum for Southern Africa	Ongoing				http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=669&mode=2&in_hi_userid=2&cached=true
Practices	Integrated Malaria Early Warning Systems Approach to Epidemic Preparedness & Response (i.e. MEW in Eritrea, Malaria Stratification in Eritrea?)	Ongoing				
Practices	Development of an Information and Monitoring System to Evaluate Risks in Agricultural Production in Paraguay and Uruguay	Ongoing	• Real-time climate and vegetation information • Adequate com-munication flows between the providers of the information and the offices for agricultural planning	• Climate information is not always available at real time • Capacity building is necessary for GIS and data analyses	The combination of IRI leadership/ collaboration and South-South cooperation has been very effective	http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=285&mode=2&in_hi_userid=2&cached=true
Practices	Climate Variability and Change in the Mixed Crop/Livestock Production Systems of the Argentinean, Brazilian and Uruguayan Pampas: Climate Scenarios, Impacts and Adaptive Measures	Ongoing	Policy makers need better understanding of climate change, climate variability, as well as possible interventions to assist in managing climate risks and missed opportunities	• Uncertainty level of the climate change scenarios at the local level is too large to modify planning and decision-making • Focusing on adaptation to current climate variability and managing current climate risks is being much more effective	Work, information and products are needed at different temporal scales (from seasonal /interannual to decadal/ multidecadal) depending on the climate related problem that is being tackled.	
Technologies	West Africa Climate and Health	Under-development				http://iri.columbia.edu/africa/project/RegionalProgramWAfrica/ http://iri.columbia.edu/a

						frica/project/MalariaNiger/
National level						
Approaches/ strategies						
Practices	Supporting Climate Risk Management in Smallholder Farming in Kenya	Under consideration	Downscaled forecast information that is accessible and relevant to rural communities. Tools, training and policies to enable forecast providers to provide the information products. Training to equip farmer advisors to communicate climate information and support risk management. Educational materials to empower rural communities to use climate information.	Capacity of the country's agricultural extension service. Coordination between the Ministry of Agriculture and the Meteorology Department.		http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=666&mode=2&in_hi_userid=2&cached=true
Practices	Climate Risk Assessment and Risk Management in the Agricultural and Forestry Sectors of Uruguay	Under implementation	Real-time climate and vegetation information. Communication between information providers and offices for agricultural planning			http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=407&mode=2&in_hi_userid=2&cached=true
Practices	National Integrated Dengue and Malaria Surveillance and Control System for Colombia	Ongoing				http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=531&mode=2&in_hi_userid=2&cached=true
Practices	Fire Early Response Systems in Central Kalimantan, Indonesia (part of Central Kalimantan Peatlands Project)	Ongoing	1) High resolution climate and environmental data, both observed and satellite-derived; 2) partnership of government/non-government stakeholders to identify	A complex array of factors contribute to fire occurrence, of which climate is just one. Early warning based on climate and environmental indicators must be combined with		http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=466&mode=2&in_hi_userid=2&cached=true

			how early warning can be used to reduce fire iimpacts	addressing critical development concerns in fire-prone peatland areas.		
Practices	Managing Climate Risks in the Context of Competing Claims over Water: Demonstrating Integration of Climate Information into Reservoir Models for the Angat Reservoir, Philippines	Ongoing	1) Close collaboration with reservoir stakeholders and water management authorities; 2) availability of climate and streamflow data; 3) capacity development to enable stakeholders to utilize decision tools	Current institutional and policy context makes the introduction of risk management strategies, such as drought risk insurance, difficult to introduce	Integration of seasonal climate information into reservoir models can offer benefits, but requires very close collaboration with local stakeholders to make implementation possible	http://portal.iri.columbia.edu/portal/server.pt?open=512&objID=464&PageID=329&cached=true&mode=2&userID=2
Practices	Managing climate risks to food security in Nusa Tenggara Timur	Ongoing	Data on climate and food security indicators at provincial and sub-provincial scales; close collaboration with stakeholder agencies	Limited data availability at provincial/sub-provincial levels		http://portal.iri.columbia.edu/portal/server.pt?open=512&objID=464&PageID=329&cached=true&mode=2&userID=2
Practices	Climate risk management in Vietnam: a Pilot Study of the Mekong Delta	Study ongoing	Data on streamflow, particularly during the dry season, from other countries in the Mekong River Basin	Limited availability of data on streamflow; confluence of human interventions in river basin and climate factors		http://portal.iri.columbia.edu/portal/server.pt?open=512&objID=464&PageID=328&cached=true&mode=2&userID=2
Practices	Climate and Water and Environmental Management in the Mahaweli Basin of Sri Lanka	Completed – Follow up by partners ongoing	Partners in implementing agency. Suitable local technology development. Proper data management.			http://www.pubs.asce.org/WWWdisplay.cgi?0303662
Practices	Climate and Human Elephant Conflict in Sri Lanka	Study completed	Partners in implementing agency. Suitable local technology development. Proper data management.			http://iriportal.ldeo.columbia.edu/portal/server.pt/gateway/PTARGS_0_5002_1030_0_0_18/Completed%20Project%20Report_Climate%20Habitat%20Interactions%20Elephants%20Sri%20Lanka.pdf
Practices	Impact Assessment and Adaptation to Climate	Completed	Partners in implementing agency.			http://iriportal.ldeo.columbia.edu/portal/server.

	in the Plantation Sector in Sri Lanka		Suitable local technology development. Proper data management.			pt/gateway/PTARGS_0_5002_1287_0_0_18/Climate%20and%20Climate%20Change%20Assessments%20for%20Plantations%20Sri%20Lanka.pdf
Practices	Climate and Natural Hazard Risk Identification in Sri Lanka	Study Completed.	Partners in implementing agency. Suitable local technology development. Proper data management.			http://iriportal.ldeo.columbia.edu/portal/server.pt/gateway/PTARGS_0_5002_1032_0_0_18/Sri%20Lanka%20Hazard%20Risk%20and%20Vulnerability%20Report%20Highlights.pdf
Practices	Impacts of Climate Variability on Vector-borne Disease Transmission in Sri Lanka and the Development of an Early Warning System	Ongoing	Partners in implementing agency. Suitable local technology development. Proper data management.		Annual reports are available	http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=468&mode=2&in_hi_userid=2&cached=true
Technologies						
Local (community) level						
Approaches/ strategies						
Practices	Impacts of Water Resource Management Choices in Ceará, Brazil: Roles of Streamflow Forecasts, Rainfall Forecasts and Participatory Decision Making	Ongoing				http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=414&mode=2&in_hi_userid=2&cached=true
Practices	Development of Effective Communication Strategies for Dissemination of Climate Information	Ongoing				http://iriportal.ldeo.columbia.edu/portal/server.pt?open=512&objID=621&mode=2&in_hi_userid=2&cached=true
Practices	Managing climate risk	Under implementation	Quantitative and	Relevant information		

	for agriculture and water resources development in south-western South Africa: Quantifying the costs, benefits and risks associated with planning and management alternatives		qualitative tools and methods to conduct integrated assessments of climate change and variability adaptation decisions. Capacity to use these tools. Broader understanding of how using these tools will benefit Africa.	from climate change forecasts not disseminated to water resource managers or integrated into water resource policy, planning and management in Africa. Shortage of integrated approaches for evaluating and making adaptation decisions related to water resources in Africa.		
Practices	Managing Climate Risks Across Timescales: A Pilot Study of metro Manila, Philippines	On-going	Data on major demographic/development trends over the coming decades, accompanied by climate information downscaled to the sub-region	Limited ability to downscale regional climate models to temporal and spatial scales that are meaningful to decision-makers	Urban decision-makers in metro Manila are primarily concerned about impacts of climate variability today. They want to understand better the uncertainties of the future climate, but studies must integrate expected changes in climate patterns with major demographic trends facing metropolitan regions.	
Technologies (In this project, the technology is an institutional one – participatory management)	Decentralization and Local Public Goods: How does allocation of decision-making authority affect provision?	Under implementation	One need for successful implementation is an effective institutional approach. The objective of the project is to identify when and how communities should be involved in deciding, planning, implementing and monitoring action.	Time and human capital needed to establish the institutional framework which will best support the action.		
Technologies	Managing Climate Variability to Improve Livelihoods in South	On-going	Time series datasets on key indicators of livelihoods at a state	Limited availability of long time series of relevant variables as		http://portal.iri.columbia.edu/portal/server.pt?open=512&objID=470&

	and Southeast Asia: Methods, Tools, and Policies		and/or district level; Bayesian statistical modeling	indicators of livelihood inputs, outputs, and outcomes		PageID=0&cached=true&mode=2&userID=2

Sectoral level[2]						
Agriculture						
Approaches/ Strategies						
Practices	Improving Locusts Outbreak Forecast in Africa and Asia using Climate Forecast Products	Under development				
Practices	Advanced Training Institute on Climate Variability and Food Security	Completed	Sufficient funds to link training with seed projects. Mentoring for trainees during project implementation.		Combining workshop-based training with seed funds and mentoring for follow-up projects helps embed climate knowledge within trainees home institutions.	http://iri.columbia.edu/outreach/meeting/ATI2002/
Technologies						
Water resources						
Approaches/ Strategies						
Practices						
Technologies						
Health						
Approaches/ Strategies						
Practices	Determinants of Meningitis in Ethiopia	Ongoing				http://iri.columbia.edu/africa/project/MeningitisEthiopia/
Technologies						

[2] The sectors below are given as examples. Please provide information on any other sectors which you consider important and have examples to share.

Coastal zones (settlements)						
Approaches/ Strategies						
Practices						
Technologies						
Others (please provide information about other relevant sectors)						
Approaches/ Strategies						
Practices						
Technologies						