

# **Applications of Economic Valuation Methods for Assessing the Costs & Benefits of Climate Change Adaptation**

**2<sup>nd</sup> Regional Training Agenda, 14 April – 18 April 2014  
Addis Ababa**

Capacity development of countries is urgently required to enhance local technical, analytical and institutional capacity for climate resilient development. This is a key pillar of the WACDEP and UNDP GEF's assistance to countries on accessing climate finance and advancing their respective NAP process. Investment planning for climate resilience needs to be informed by sound economic analysis of adaptation in order that trade-offs are recognized and optimal decisions are made in the face of the inevitability of a multiplicity of needs and scarcity of resources with which to meet all needs.

The Capacity Building Programme on the Economics of Climate Change Adaptation (ECCA), Water Security and Climate Resilient Development in Africa is a cooperative effort between UNDP-GEF, GWP, CDKN, UNDP-CAPNET, UNEP and Center for Environmental Economics & Policy in Africa (CEEPA). The initiative supports the implementation of climate change commitments in the 2008 African Union Heads of State Sharm el Sheikh Declaration on water and sanitation and supports implementation of the Water, Climate and Development Programme (WACDEP) implemented by African Ministers Council on Water (AMCOW) and GWP.

The Programme is also part of the response by UNDP, and UNEP and other international organizations to a call for assistance by LDCs to help advance their NAP process as per Durban and Poland COP Decisions in 2012 and 2013, respectively. The effort is in line with helping countries advance their national adaptation plans (NAPs).

In this context, the Programme is one of the services provided by the UNDP-UNEP Global Support Programme for NAPs, an initiative that is in place to assist LDCs and other developing countries to integrate climate change into existing medium- to long-term planning for adaptation to climate change. The strengthening of technical skills in the economics of adaptation, and in particular appraisal of adaptation options, is one of the key areas that countries require in the context of Element B: Preparatory Elements of the UNFCCC/LEG guidelines for NAPs. The training provided through this particular workshop is directly aligned with the deliverables of the NAP-GSP (knowledge brokerage, technical support etc).

The objective of the Capacity Development Programme on the Economics of Adaptation, Water Security and Climate Resilient Development in Africa is to, among other things; develop the capacity of planners and technical officers in planning/finance as well as in ministries in charge of environment, agriculture, water, public works, lands and others. This joint initiative will contribute to enhanced understanding of the economics of adaptation including appraisal of adaptation options as it relates to medium- and long-term national, sub-national and sectorial development planning. This improved understanding will capacitate planners to have more complete information for their own decision-making processes to support selection and eventually implementation of optimal investments in climate change risk management.

The implementation of the Capacity Development Programme is embedded in GWP and WACDEP regional and country management teams, linked to the UNDP GEF supported portfolio of adaptation projects financed by the Least Developed Country Fund, Special Climate Change Fund, Adaptation Fund as well as those financed by bilateral finance such as from the Governments of Germany and

**Capacity Building on the Economics of Adaptation, Water Security and Climate Resilient Development**  
*National Adaptation Plan Global Support Programme (NAP GSP)*

Canada. The delivery of capacity development support through this programme will be closely coordinated with UNDP Country Offices, as established following the methodology proposed in the African Union and AMCOW Framework for Water Security and Climate Resilient Development.

The initiative draws on local and regional experts on the economics of adaptation and appraisal techniques to promote South-South knowledge exchange. North-South exchange is also promoted to ensure that new techniques and lessons from countries where such tools are most often used (in developed countries) can be transferred and shared with those in development countries. This type of exchange is promoted through the active involvement of international organizations and academia such as Centre for Environmental Economics and Policy in Africa (CEEPA) in Pretoria, South Africa, Yale School of Forestry and Environmental Studies of the USA and NIRAS with its partners of Stockholm. The initiative will also build and benefit from UNDP-GEF/USAID's ADAPT Asia-Pacific Programme's experience in undertaking similar work in Asia and the Pacific.

The capacity development made available through this programme will be delivered as a series of training and experience-sharing workshops interspersed with field work, on the job training and application. The targeted audience for the training are technical officers from National Planning Ministry, line Ministry and/or Finance, whose main responsibility is to appraise alternative interventions that require funding from the national budget. The officers are treated as a ECCA Country Team. In some cases, the country team includes a representative from a local academic institute/think tank who works closely with a Ministry to appraise alternative investment options.

At the 1<sup>st</sup> regional training workshop held in November 2013, participants were provided an insight into and sensitized on different methods and data requirements for assessing the economic costs and benefits of adaptation. (See <http://undp-alm.org/projects/ecca-africa>). As post regional training tasks, each ECCA Country Team was asked (a) to identify a project that could be assessed in terms of associated economic costs and benefits; and (b) undertake preparatory work to analyze the economic impacts of climate change impacts and adaptation in the agriculture and water sectors.

At this 2<sup>nd</sup> regional training, each ECCA Country Team will be trained on conducting economic cost-benefit analysis. Using both demonstration data as well as in-country data collected by Country Teams and based on methods introduced at the 1<sup>st</sup> regional training, ECCA Country Teams will be trained on how to apply analytical microeconomic techniques to assess the costs and benefits of adaptation. The results of the analysis are aimed at supporting decision-making related to the assessment of alternative adaptation options.

The 3<sup>rd</sup> and 4<sup>th</sup> trainings will move from project analysis to sectoral analysis and will look into country-specific institutional development plans, within the context of ongoing and new initiatives, this analysis will be further presented to policy makers.

<b>Time</b>	<b>Topic</b>	<b>Presenter/Facilitator</b>
<b>Monday, 14 April 2014: Combined Session with NAP-GSP sponsored workshop</b>		
	Introduction to the NAP process and NAP-GSP Opening (NAP-GSP) Introduction of participants Introduction to the NAPs under UNFCCC process, its objectives and principles (LEG/UNFCCC secretariat) Introduction to NAP GSP, objectives, outputs and activities and the menu of services (NAP-GSP) Case studies from the North and the South on efforts underway to advance the NAP process	
<b>Monday 14 April 2014: Economics of climate change adaption (to be conducted in Parallel to the NAP-GSP sponsored event)</b>		

**Capacity Building on the Economics of Adaptation, Water Security and Climate Resilient Development**  
*National Adaptation Plan Global Support Programme (NAP GSP)*

<b>Monday, 14 April 2014: Economics of climate change adaption (to be conducted in Parallel to the NAP-GSP sponsored event)</b>		
14:00 – 14:15	Welcome and Opening Remarks	Pradeep Kurukulasuriya UNDP  Alex Simalabwi GWP
14:15 – 14:30	Introduction of the agenda and expected outputs of the workshop.	Babatunde Abidoye CEEPA
14:30 – 15:15	<p><b>Overview of Country Projects</b></p> <p>Each team will introduce the adaptation project from their country that they will use as the foundation of their learning exercises on applying methods to estimate costs and benefits of planned investment projects.</p> <ul style="list-style-type: none"> <li>• Brief description of the project chosen for analysis as part of this ECCA programme?</li> <li>• Describe a major project activity, where quantifying costs and benefits were challenging.</li> <li>• Provide examples of benefits and costs for the activity.</li> </ul>	Country Teams
15:15 – 15:30	Coffee Break	
15:30 – 16:15	<p><b>Overview of Country Projects (Cont'd)</b></p> <p>Each team will introduce the adaptation project from their country that they will use as the foundation of their learning exercises on applying methods to estimate costs and benefits of planned investment projects.</p> <ul style="list-style-type: none"> <li>• Brief description of the project chosen for analysis as part of this ECCA programme?</li> <li>• Describe a major project activity, where quantifying costs and benefits were challenging.</li> <li>• Provide examples of benefits and costs for the activity.</li> </ul>	Country Teams
16:15 – 17:00	Introduction to Cost Benefit Analysis	Pradeep Kurukulasuriya UNDP
<b>Tuesday, 15 April 2014: Economics of climate change adaption (to be conducted in Parallel to the NAP-GSP sponsored event)</b>		
8:30 – 10:30	<p><b>Cost Benefit Analysis revisited</b></p> <p>In this session, participants will be introduced to both the theory and application of methods and data to estimate the costs and benefits of the adaptation projects that each team is focused on.</p> <p>Hands-on: Practical exercise on how to apply CBA to a project using Excel will be carried out by all participants.</p>	Babatunde Abidoye CEEPA
10:30 – 10:45	<i>Coffee Break</i>	
10:45 – 11:30	<p><b>Project Evaluation and Internal Rate of Return (IRR)</b></p> <p>In this session, participants will be introduced to the concept of IRR and its importance to project evaluation. Similarities and differences with the Net Present Value will also be highlighted.</p>	
11:30 – 12:30	<p><b>Travel Cost Method</b></p> <p>A number of benefits associated with adaptation do not have prices associated with them. However, there are non-market values that must be taken into account in the CBA. In this session, we will introduce and train everyone on a method that is frequently used to estimate non-market use values—referred to in the literature as the travel cost method. This</p>	Babatunde Abidoye CEEPA

**Capacity Building on the Economics of Adaptation, Water Security and Climate Resilient Development**  
*National Adaptation Plan Global Support Programme (NAP GSP)*

	<p>valuation method is used frequently to calculate the value of national parks, beaches, ecosystems etc.</p> <p><u>Hands-on:</u> Teams will be expected to use data provided by the organizers to practice the application of the travel cost method. Teams will undertake an Excel based exercise to become familiar with the technique.</p>	
12:30 – 13:30	<i>Lunch</i>	
13:30 – 15:00	<p><b>Contingent Valuation Methods</b>  A second approach for assessing non-market values will be introduced in this session. Hands on training on Contingent Valuation Methods – a survey-based economic technique for the valuation of non-market resources such as environmental preservation or the impact of contamination.</p> <p><u>Hands-on:</u></p> <ul style="list-style-type: none"> <li>- Each country team will be asked to design a questionnaire, with guidance and feedback provided by the mentors.</li> <li>- An analytical exercise using data provided, or a case study, to become familiar with the principles underlying this technique.</li> </ul>	Babatunde Abidoye CEEPA
15:00 – 15:15	<i>Coffee Break</i>	
15:15 – 16:30	<p><b>Discounting and Including Climate Change</b>  In this session, participants will be introduced and trained on methods of combining annual costs and benefits across time, choosing a discount rate, and calculating the present value of a stream of costs and benefits.</p> <p><u>Hands-on:</u> Teams will undertake an Excel based exercise to become familiar with the technique of discounting.</p>	
16:30 – 18:00	<p><b>Benefit Transfer Method</b>  In this session, participants will be introduced to the benefit transfer method, frequently used to estimate economic values by transferring available information from studies already completed in a specific location to the analysis of an issue in another location that may not have primary data easily available. Participants will be trained on when this technique would be most appropriate to apply.</p> <p><u>Hands-on:</u> Teams will undertake an Excel based exercise to become familiar with the technique</p>	
<b>Wednesday, 16 April 2014 – Agricultural Sector Study</b>		
8:30 – 9:30	<p><b>Introduction</b>  Before moving to the session on estimating the costs and benefits of adaptation in the agriculture sector, participants will be trained on the statistical software, STATA and <b>survey methodology</b>.</p> <p>This session will also introduce the agriculture data set from Africa to be used in the day's sessions.</p>	Babatunde Abidoye CEEPA
9:30 – 10:30	<p><b>Ricardian Analysis</b>  Participants will be trained on a method that is widely used to estimate the</p>	

**Capacity Building on the Economics of Adaptation, Water Security and Climate Resilient Development**  
*National Adaptation Plan Global Support Programme (NAP GSP)*

	economic costs and benefits of climate change impacts, and adaptation. In this session, Participants will be trained on the theory underpinning the method.	
10:30 – 10:45	<i>Coffee Break</i>	
10:45 – 11:30	<p><b>Ricardian Analysis</b> (continued)</p> <p><u>Hands-on:</u> An exercise will be conducted here where the country teams will be guided through a full analytical exercise. Using STATA, everyone will analyze a dataset together.</p>	
11:30 – 12:30	<p><b>Adaptation</b> Irrigation</p> <p>Using data from Africa, participants will be trained on how to calculate changes in irrigation as a result of climate change.</p> <p><u>Hands-on:</u> work in teams to complete irrigation analysis using Africa example</p>	
12:30 – 13:30	<i>Lunch</i>	
13:30 – 14:15	<p><b>Adaptation</b> (continued) Irrigation</p> <p><u>Hands-on:</u> work in teams to complete farmland analysis using Africa example</p>	
14:15 – 15:15	<p><b>Crop Choice</b></p> <p>Using an example from Africa, training on how to assess the climate sensitivity of the probability of choosing a particular crop. Example using data for Africa and China.</p>	
15:15 – 15:30	<i>Coffee Break</i>	
15:30 – 17:00	<p><b>Crop Choice</b> (continued) Examination of the probability of choosing all crops.</p> <p><u>Hands-on:</u> work in teams to complete crop choice analysis based on Africa and China example using STATA</p>	
<b>Thursday , 17 April 2014 – Water Sector Analysis</b>		
8:30 – 9:45	<p><b>Forecasting the Impacts of Climate Change</b></p> <p>Impacts of climate change on water resources in Africa</p> <p>Combining analysis of impacts and adaptation, with climate models for purposes of forecasting the impacts of climate change - using data from Africa to illustrate application</p> <p><u>Hands-on:</u> Exercises using STATA</p>	Babatunde Abidoye CEEPA
9:45 – 10:30	<p><b>Water Supply Modeling</b></p> <p>Introduction to water supply modeling – identifying necessary data for collection and taking into account how changes in runoff affect changes in water supply. Session will also explore the role of water management.</p>	
10:30 –	<i>Coffee Break</i>	

**Capacity Building on the Economics of Adaptation, Water Security and Climate Resilient Development**  
*National Adaptation Plan Global Support Programme (NAP GSP)*

10:45		
10:45 – 11:15	<b>Baseline Use</b> Introduction to calculating water use - identifying the users of water, the amount of water each user uses, and the difference between withdrawal and consumption.	
11:15 – 12:30	<b>Water Demand Modeling</b> Training on water demand modeling to gauge how water use responds to price, and explore what other factors affect water use for farmers, households and industry.  <u>Hands-on:</u> Exercises using Excel	
12:30 – 13:30	<i>Lunch</i>	
13:30 – 15:30	<b>Modeling Water Demand and Supply</b> Combing water demand and water supply in modeling, interpreting the results and how they relate to decision making in water allocation, and the importance of seasons.	
15:30 – 15:45	<i>Coffee Break</i>	
15:45 – 16:45	<b>Adding economic growth and climate change</b> Adding economic growth to models, and measuring how it affects water use over time. Discussion about how climate change affects water supply and demand, and how water management can adapt to these changes.	
16:45 – 17:30	Wrap-up and discussion of the week's training, agreement on next steps	Pradeep Kurukulasuriya UNDP  Alex Simalabwi GWP
	Clinics with individual country teams (with mentors) on post-training plans and next steps in preparation for the 3 <sup>rd</sup> Regional Training on the Economics of Adaptation where the focus will be on sharing initial results from country specific analysis using the techniques introduced in the programme to date	

Note: Details and times in agenda may change.