



# Capacity Development for Adaptation to Climate Change & Greenhouse Gas Mitigation

To strengthen capacities of Non-Annex I countries and institutions to address climate change through nationally appropriate measures and planning strategies



**unitar**

United Nations Institute for Training and Research

*“What sets C3D+ apart is the South-South-North collaboration of partners, testing of tools in the field through participatory processes, and a commitment to link research with policy making.”*

**Mr. Secou Sarr**

Environnement et Développement du Tiers Monde - ENDA





# Background

The C3D+ project was launched in 2003 with the objective of improving the capacities of developing countries to implement nationally appropriate actions towards climate change adaptation and mitigation. The project strengthens endogenous capacities of UNFCCC Non-Annex I countries through a South-South-North network of research and training institutions.

Non-Annex I countries are becoming increasingly involved in climate change actions and negotiations that affect their future. Countries are focusing on the need to adapt to the challenges of climate change as well as in finding ways to benefit from the rewards of low carbon growth. This requires support across a wide range of areas so that these countries can interact more effectively with the UNFCCC and other global mechanisms which have been established for their benefit.

C3D+ is responding to this demand in the areas of research, training and capacity development. The project is implemented through a network of nine organizations that work collectively in contributing their specialized experience and expertise. The network works with governments (including negotiators and policy analysts), local communities, national institutions, intergovernmental organizations, non-governmental organizations and research/training institutions.

## Target Partners

The C3D+ network has grown from three partners in 2003 (ENDA, ERC and MIND) to a South-South-North network of nine partners:



**CCCCC**  
Caribbean Community  
Climate Change Centre



**CSAG-UCT**  
Climate Systems Analysis Group  
University of Cape Town



**ENDA-TM**  
Environnement et Développement  
du Tiers Monde



**ERC-UCT**  
Energy Research Centre  
University of Cape Town



**MIND**  
Munasinghe Institute for  
Development



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme

## Global Partners



**CIFOR**  
Center for International  
Forestry Research



**IISD**  
International Institute for  
Sustainable Development



**SEI**  
Stockholm Environment  
Institute

The United Nations Institute for Training and Research (UNITAR) provides overall project coordination, monitoring, reporting and financial management of C3D+.



# Objectives

**Strengthened capacities of Non-Annex I countries and institutions to address climate change through developing adaptation measures and planning mitigation strategies**

To promote dialogue to make UN member state development more sustainable, by integrating climate change into national sustainable development strategies.

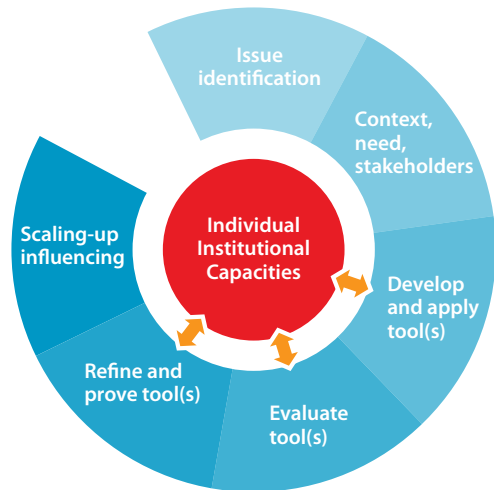
To place developing countries in a better position to engage in UNFCCC processes, in support of a post-2012 climate change agreement.

To increase relevant human skills and institutional capacities in targeted developing countries.

# How C3D+ works

Each partner contributes unique knowledge and skills, yet applies a common approach – the C3D+ cycle – whereby climate change decision support tools are developed, tested, adjusted and ultimately up-scaled. These are underpinned by a capacity development approach focusing on national context and national appropriateness.

## The C3D+ cycle

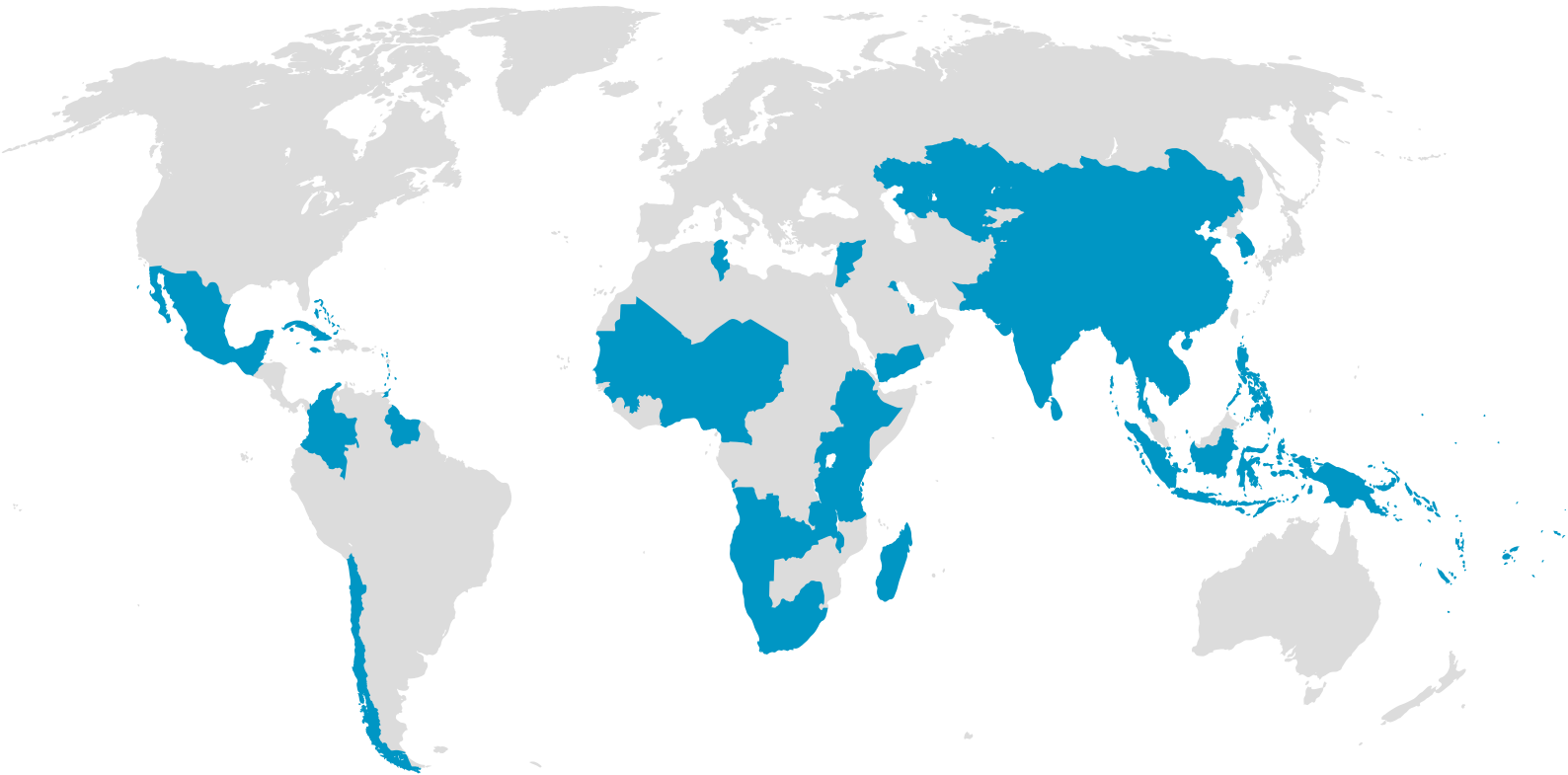


## What makes C3D+ unique

- Responds specifically to requests and identified needs of Non-Annex I countries for climate services.
- Tools and methods developed are nationally appropriate and nationally owned.
- Helps to develop the complementary skills and institutional capacities necessary to enable wider application of tools and methods.
- Collaborates among partners to allow exchange of information, knowledge and skills through a South-South-North approach
- Starts with the identification of a specific climate change problem and applies several tools in combination, as required.
- Not a stand-alone project, but builds on research and training work already being carried out by partners.



# Where C3D+ is working





# Services

C3D+ develops and tests tools and methods that help developing countries to make planning decisions that take climate change into account. It also develops the individual skills and institutional capacities to use these tools for decision making. The service areas supported by C3D+ include: climate science and information, climate vulnerability and adaptation, climate mitigation and mainstreaming. Capacity development cuts across each of the service areas.

## Climate Science and Information Services

Climate science and information tools support the development of future climate scenarios and frame the context that might otherwise seem complex to non-technical audiences.

### Climate Information Platform [cip.csag.uct.ac.za](http://cip.csag.uct.ac.za)

The Climate Information Platform (CIP), developed by CSAG, is a web interface that provides analysis and interpretation of regional and local climate data, with two main functions:

- A climate database that stores and manages queries about climate data; and
- An extensive collection of guidance documentation on how to use and interpret climate data.

CIP users can access large quantities of observational climate data and future climate projections that can inform decision-making on vulnerability and adaptation to climate change.

## weADAPT Platform [weadapt.org](http://weadapt.org)

weADAPT is an online knowledge sharing platform with resources on climate change adaptation, developed by SEI. With C3D+ support, SEI has been able to provide training that enables practitioners, researchers and policy makers to access credible, high quality information on adaptation and to share their experiences and lessons learnt within a “weADAPT community”. Improvements and guidance material on the use of weADAPT and its linkage with other tools has also been developed through C3D+ support.

The weADAPT knowledge base includes resources on:

- Vulnerability assessments;
- Adaptation decision making;
- Climate adaptation training;
- Improving access to climate adaptation information using Google Earth; and
- Community based adaptation.

C3D+ has its own space on weADAPT where the network is showcased through various social media channels and partner platforms.



# Climate Vulnerability and Adaptation Services

The adaptation tools and methodologies developed through C3D+ help decision-makers and analysts to identify relevant information and appropriate adaptation options, with an understanding of present and future climate hazards and socioeconomic contexts.

## **CRiSTAL Forest** Community Based Risk Screening Tool – Adaptation and Livelihoods – Focus on Forests

[cifor.org/cristal-forest](http://cifor.org/cristal-forest)

CRiSTAL is a project planning and management tool developed by IISD and IUCN that enables users to integrate risk reduction and climate change adaptation into their community-level work. CRiSTAL Forest was developed by IISD and CIFOR under the C3D+ project and is specifically designed for project planners to identify and address livelihood and adaptation constraints in forest dependent communities.

CRiSTAL Forests helps users to understand:

- How current and potential future climate hazards affect/ may affect a project area, its forests, ecosystem services and local livelihoods.
- How communities respond to the current and potential direct and indirect impacts of these climate hazards.
- Which ecosystem services are most affected by current climate hazards and which ones are most important for the response strategies.
- How project activities affect access to, or availability of, these critical ecosystem services.
- What project adjustments (revision of existing activities and/ or design of new activities) can be made to support climate adaptation and reduce climate risks.
- The potential of activities to reduce greenhouse gas emissions and participate in REDD+ schemes.

## Climate Adaptation Options Explorer

[weadapt.org/knowledge-base/adaptation-decision-making/adaptation-decision-explorer](http://weadapt.org/knowledge-base/adaptation-decision-making/adaptation-decision-explorer)

SEI's Climate Adaptation Options Explorer (ADx) helps decision-makers to identify and select the best adaptation options in a given situation. ADx has a knowledge base with information on various adaptation options/strategies, gathered from different sources and applies multi-criteria methods to enable comparison and selection. The tool can be accessed through weADAPT and includes resources on different decision methods, climate scenarios and socio-economic scenarios. ADx is then implemented through two engines – a voting/ranking method whereby participants identify their preferred options, and an Analytic Hierarchy Process where the decision-maker/s establish preferences when comparing options against each other.

## Adaptation Toolkit

[weadapt.org/knowledge-base/adaptation-decision-making/adaptation-tool-kit-navigation-page](http://weadapt.org/knowledge-base/adaptation-decision-making/adaptation-tool-kit-navigation-page)

The ENDA and SEI Adaptation Toolkit is a guide for researchers involved in climate vulnerability assessments and adaptation planning. It includes a methodology and seven participatory action research tools selected for use at community level. When used in combination, these tools allow researchers to:

- Identify current capacities, skills and assets in a project site;
- Understand past climate related events and coping strategies
- Understand current climatic and environmental hazards that shape vulnerability; and
- Facilitate a multi-stakeholder process for developing locally suitable adaptation strategies.



- Photo by Rini Sulaiman/ Norwegian Embassy / CIFOR

## Climate Mitigation Services

Mitigation activities supported under C3D+ address the connection between poverty alleviation, development and reducing greenhouse gases. They focus on national coordination and participation in the development of a new climate regime, emphasizing the need for a better understanding of the two-way interaction between low carbon growth and economic development.

### Mitigation Analysis Toolkit [www.erc.uct.ac.za](http://www.erc.uct.ac.za)

Developed by ERC, this toolkit aims to build the capacity of climate change practitioners in developing countries to integrate mitigation planning into national development strategies. It contains three main tools:

- Post-2012 Mitigation Analysis Tool to analyse the implications of post-2012 climate change mitigation proposals;
- Personal Carbon Footprint Calculator to quantify the climate change impacts of individual lifestyles based on country specific emission factors; and a
- Mitigation Project Analysis Tool composed of simple tutorials and exercises to analyse mitigation projects.

## Mainstreaming Services

To support the integration of climate change across sectors and to ensure that development is being planned in a climate sensitive and sustainable way, policy makers need decision support tools to help to analyse and use multiple sources of information.

### Action Impact Matrix [mindlanka.org](http://mindlanka.org)

Developed by the Munasinghe Institute for Development (MIND), the Action Impact Matrix (AIM) analyzes the linkages between climate change and sustainable development. It identifies and lists social, economic and environmental factors specific to each country, yet critical for development, and links these factors to national development goals. The tool enables stakeholders to identify potential barriers for development and to determine priority strategies to overcome them. The AIM matrix proposes policy options that stakeholders can use for building climate resilience into national sustainable development strategies and plans.





# Capacity development activities

C3D+ supports complementary capacity development activities for countries to be able to use climate services, plan and implement climate change actions, and engage in outreach, networking and knowledge sharing activities.

## CSAG Winter School <http://www.csag.uct.ac.za/winterschool>

This intensive course is directed at practitioners involved in climate change decision-making and policy development. Topics include:

- Climate change dynamics
- Risk and vulnerability framing
- Climate change modeling
- Climate change scenarios
- Climate change adaptation frameworks
- Downscaling methods
- Adaptation planning, policy and decision making

## Other activities

- Training workshops: training for stakeholders on the application of all C3D+ tools and methods.
- Scholarships and internships: training and mentoring of students and partner organizations.
- Strengthening local and regional meteorological networks: enhancing institutional and human capacities by reinforcing networks, access to information and analytical skills.

# Key Lessons Learned

- Tool selection and development should always start with the identification of a specific problem or issue that needs to be resolved.
- Tools need to be adjusted to the specific context for which they are intended, to ensure that they have desired impact. This means that field testing among users is fundamentally important.
- Effective collaboration between partners requires a combination of commitment, time, resources, good relationships, as well as compatible institutional cultures.
- Capacity development needs to be continuous and embedded throughout activity implementation, but critically linked to a specific outcomes or objectives - "capacity development for what?" remains a central question in any related training event.
- Decision makers, climate scientists and communities benefit from understanding each other's thinking processes and can achieve better results when encouraged to work together.





# Case Studies

## Applying the Action Impact Matrix (AIM) in South Africa to achieve development goals while mitigating climate change

Partner: MIND, ERC-UCT

National institutions addressing South Africa's energy, climate and development policies have been reviewing the future of their respective sectors. While on the energy side nuclear power appears as a key element in the proposed energy mix for the future, the National Planning Commission has suggested that this policy needs to be revisited in the light of broader development goals and of the large financial investment required.

With the objective of reviewing the different options while taking into account climate change, energy, gender, health, transport and economic development, ERC convened a group of 30 experts to discuss the trade-offs between alternative investment policies and how these would impact on the development goals of the country.

The discussions were structured around the Action Impact Matrix, presenting the key national development challenges (poverty, inequality reduction and emissions) on one axis and possible actions on the other. To complete the matrix and understand how each action could impact on the development goals, scenarios were modelled based on opportunity costs. These scenarios were used to simulate the trade-offs between investing in renewable energy technologies versus nuclear power. The scenarios were further strengthened with quantitative research stemming from case studies and a workshop held for experts to rank mitigation options and select those best suited to the broader development goals.

AIM's structured approach allowed the experts to carry out a systematic analysis of the different technologies



AIM Matrix (ERC-UCT)

under review (solar water, CSP, photovoltaic, wind power, electric car and nuclear) rating them in terms of their impact on the different goals, based on quantitative results and on lessons learned from national and international case studies. The group concluded that the contribution of each of these technologies to GHG mit-

igation was similar and that the key differences were in their potential for job creation, for which solar water, photovoltaic, concentrated solar power and wind power have a greater potential than nuclear energy. Additionally, investing in nuclear energy would require further resources from the national savings pool. Analysing the

issue through the AIM methodology allowed experts to conclude that though nuclear power would satisfy the mitigation goals of the country, it would have a negative impact on development goals, namely on the reduction of poverty and inequality, growth of GDP and job creation.

## Using the Adaptation Toolkit and ADx to support adaptation in Greater Banjul, Gambia

Partner: SEI, ENDA

Located on the coast and with around 350,000 people, the Greater Banjul area is home to 26% of Gambia's population and serves as an economic hub for commerce and tourism, fishing, oyster collection, the production of rice, groundnuts and other agricultural crops.

With support from ENDA, SEI's Adaptation Toolkit was used to conduct a study on vulnerability and adaptation to climate change in Banjul. The area was found to be exposed to erratic rainfall patterns, increasing temperatures and sea-level rise. The impact of these changes has begun to be felt in the form of extreme episodes of torrential rains, dry spells, storms (wind, thunder and dust) droughts, cool spells, heat waves, beach erosion, outbreaks of parasitic diseases and crop pests, as well as saline intrusion into productive land, rivers and ground water.

In response to these challenges, community members from the Old Town of Banjul proposed a range of interventions such as: the construction of water ways for the passage of heavy run-off; the construction of concrete structures to avoid collapse of critical infrastructure during flooding

events; as well as measures to halt encroachment on wetlands and provide treated water to community members.

With support from C3D+, training on the Climate Adaptation Options Explorer (ADx) tool was provided as a means of determining priorities for action. The different options determined by the community were presented and then discussed and analysed against specific criteria: economic cost, creation of employment and reduction of climate risks.

The ADx process offered stakeholders an opportunity to reflect and have in-depth discussions on the benefits and challenges associated with each of the proposed actions. As a result, community members agreed that the most immediate measures should focus on halting encroachment on wetlands, with the expectation that these actions would also address flooding problems during the rainy seasons.



# C3D+ Secretariat

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