

# **START**

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# **Annual Report**

# **2010-2011**

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global change SysTem for Analysis, Research & Training

**Enhancing scientific capacity to  
inspire informed action on global  
environmental change**



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## START's Vision

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Developing countries empowered with scientific capabilities to effectively motivate and inform societal action to manage risks and address opportunities of global environmental change and sustainable development

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## START's Mission

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- To enhance scientific capacity in developing countries by strengthening and connecting existing institutions, training global change scientists, and providing them with better access to data, research, and communication technology skills;
  - To foster regional networks of collaborating scientists and institutions with the capacity to assess the causes and impacts of global environmental change and engage policymakers and other stakeholders in developing appropriate adaptation strategies; and
  - To mobilize resources that will augment existing capabilities and actions on global environmental change in developing countries.
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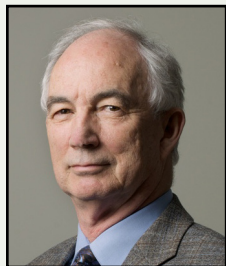
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*START International, Inc. is a 501(c)(3) international non-governmental organization*

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# Addressing capacity needs in global change science—A message from START

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**Gordon McBean**

*Chair, Board of  
Directors, START  
International, Inc.*



**Hassan Virji**

*Executive Director,  
International START  
Secretariat*

The challenges posed by global environmental change, including climate change, require rapid and sustained action to support effective responses that allow society to better manage risks and advance adaptation. Such actions must be underpinned by systems of knowledge generation and exchange that are capable of engaging a wide range of decision-makers.

Building more robust systems for generating, interpreting, and sharing knowledge about climatic and other global environmental change risks requires significant and well-targeted investments in building research capacity through education and training — a process that is in itself an adaptation response, given the substantial capacity gaps that currently exist in the developing world.

START's unique mission of supporting research-oriented capacity building addresses this need. START's programs in Africa and Asia enhance scientific capacity by strengthening and connecting existing institutions, training global change scientists, and providing them with better access to data, research, and communication technology skills. In addition to strengthening scientific capacities, START activities seek to enhance communication at the interface of science, policy, and practice.

In 2010 and 2011, START carried out an ambitious and innovative program of capacity building. The International START Secretariat, in collaboration with START's regionally based institutions in Africa and Asia, developed and convened activities related to global change

and sustainability including agriculture and food security, climate change and ecosystem services, research and education on adaptation to climate change, vulnerability of coastal mega-cities to climate change, and communication of climate change to decision-makers.

In Africa, we conducted a major international forum on climate change, education and capacity building, fostered the formation of the African Climate Research and Education Network and engaged user communities in the application of state-of-the-art downscaled climate scenarios to regional and local scale adaptation planning. In addition, a total of 44 Fellows graduated from the first round of the *African Climate Change Fellowship Program*, and we welcomed 20 new participants to our advanced education and training program on climate change and biodiversity conservation. In Asia, we expanded our *Cities at Risk* program to include a second international conference as well as city-specific training and communication activities. We also catalyzed communication at the science-policy interface via national climate change dialogues. In all these endeavors, we collaborated with many strategic partners and organizations.

This report describes our programs over the last two years. Drawing upon START's new strategy for the next decade, we also provide a glimpse of the road ahead. We are grateful to our donors, partners and supporters and members of the START family that help us in advancing global change science for development.

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# START at a Glance

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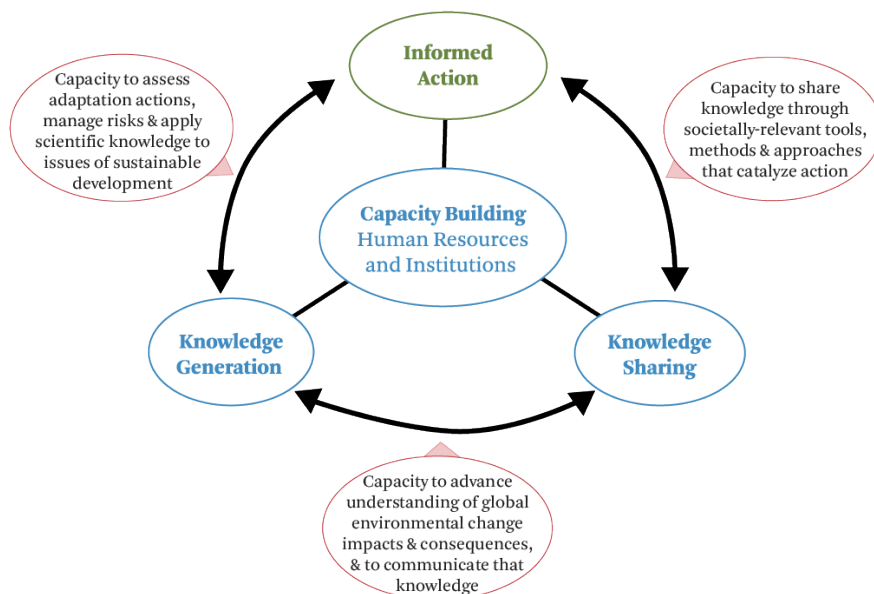
START, founded in 1992, is an internationally recognized organization that promotes research-driven capacity building to advance knowledge on global environmental change. Our work is carried out by regionally based centers in Africa and Asia-Pacific, together with the International START Secretariat based in Washington, DC. We promote capacity building of individuals and strengthening of institutions through activities that include grants and fellowships for research and assessments, curricula development, advanced training institutes, and outreach to decision-makers through multi-stakeholder dialogues and other activities.

START's actions advance science and strengthen interactions at the interface of science, policy, and practice. We engage people and institutions on climatic and other global change issues that span disaster risk reduction, land-use/land-cover change, biodiversity conservation, urban development, human health, water resources man-

agement, agriculture and food security, and regional climate modeling and climate services. In doing so, we work to integrate knowledge generation with knowledge sharing that leads to informed action, which in turn strengthens knowledge systems, as depicted in the figure below.

On an annual basis, START engages over 1,000 scientists, policymakers, and practitioners from developing countries in its research, training and communication/outreach programs. These efforts have greatly enhanced the contribution of developing country scientists to the Intergovernmental Panel on Climate Change (IPCC), the Nairobi Work Programme on Impacts, Vulnerability, and Adaptation of the UN Framework Convention on Climate Change and other global assessments and initiatives. START's work also enhances the visibility of scientists in National Adaptation Programmes of Action, National Communications to the UNFCCC and other adaptation planning efforts.

## START's Framework for Capacity Building





## Major Accomplishments

In 2010 and 2011, START and its partners:

- Successfully completed the inaugural round of fellowships under the *African Climate Change Fellowship Program* and are now launching a second and third round of fellowships under the leadership of the Institute of Resource Assessment, University of Dar es Salaam;
- Initiated a second and expanded round of the *Biodiversity Conservation under a Changing Climate* education and training program in the Albertine Rift region;
- Launched an assessment of urban/peri-urban agriculture and climate change across 9 cities in Africa and South Asia;
- Provided 20 research grants in Africa on global environmental change, agriculture and food security;
- Expanded the *Cities at Risk* program in Asia and initiated cities-related work in Africa; and
- Developed and convened a 10-country program of multi-stakeholder dialogues on climate change and development.

## Countries in Africa and Asia-Pacific Participating in START Activities (2010-2011)



# START Programs & Activities 2010-2011

In 2010-2011, START programs and activities advanced research and assessments on agriculture and food security, biodiversity and ecosystems, and urbanization; facilitated multi-stakeholder dialogues on climate change and development; supported training programs on analysis and interpretation of climate model data; and promoted strategic planning on education. The sections that follow describe specific program accomplishments.



## Agriculture & Food Security

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## Innovations in Education

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## Ecosystems & Biodiversity

18





Communication

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Climate  
Change &  
Cities

26

Climate  
Services

30





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## Agriculture & Food Security

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START is fully committed to activities that promote the generation and sharing of knowledge in support of adaptation planning for agriculture and food security. Over the past year, START launched a 9-city assessment of urban and peri-urban agriculture and climate change and awarded research grants on agriculture and food security under START's *Grants for Global Environmental Change Research in Africa Program*. START has also increased its engagement with the Climate Change, Agriculture and Food Security (CCAFS) initiative. These efforts are helping to address knowledge needs related to rural, peri-urban and urban food production.



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# START Grants for Global Environmental Change Research in Africa

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In 2010 and 2011, the International START Secretariat awarded a total of 20 research grants to African scientists to conduct interdisciplinary research on ecosystem services, agriculture and food security. The grants were awarded under START's Grants for Global Environmental Change Research in Africa Program, a long-running initiative supported by the US Global Change Research Program (USGCRP) through the US National Science Foundation.

The focus of the 2011 Call for Proposals on agriculture and food security allowed START to substantially increase the Program's reach in Africa through leveraging additional support from the Climate and Development Knowledge Network (CDKN) and the Climate Change, Agriculture and Food Security (CCAFS) initiative.

In addition, START received support from CDKN to convene a Research & Learning Forum in 2012 that will bring together GEC grantees from the 2011 projects with other specialists from Africa to share findings of their research, develop synthesis papers, and examine ways of more effectively engaging decision makers from the region in knowledge sharing on regional GEC science. The research forum will provide an opportunity to identify new areas of research for subsequent rounds of the grants program and to develop innovative pathways for communicating knowledge.

Information about ongoing and completed projects supported by START Grants for GEC Research in Africa is available at <http://start.org/programs/africangec>

## Meet the 2010 GEC Research Teams

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### Ecosystems

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*The impact of environmental change on ecosystem services supporting human livelihoods: The case of Okavango River channel flows and Boteti River, Botswana*

Principal Investigator: Dr. Gagoitseope MMOPELWA, Harry Oppenheimer Okavango Research Centre (HOORC), BOTSWANA  
Co-Investigators: Prof. Cornelius VANDERPOST, HOORC; Prof. D.L. KGATHI, HOORC

*Strengthening the capability of communities and local institutions in Southern Africa to respond to climate change through land use changes*

Principal Investigator: Prof. Henry Raphael MLOZA-BANDA, University of Malawi, MALAWI  
Co-Investigators: Dr. Caxton MATARIRA, University of Lesotho (LESOTHO); Dr. Musa DUBE, University of Swaziland (SWAZILAND)

*Assessing Soil-based Ecological Services and Opportunities to Sequester Soil Organic Carbon in Selected Watersheds of Ethiopia*

Principal Investigator: Mr. Abebe SHIFERAW, International Livestock Research Institute (ILRI), ETHIOPIA

Co-Investigators: Dr. Gete ZELEKE, International Livestock Research Institute (ILRI); Mr. Berhanu DEBELE, National Center of Competence in Research; Prof. Hans HURNI, University of Bern (SWITZERLAND)

*Vulnerability assessment and risk level of ecosystem services for climate change impacts and adaptation in Moroccan oases*

Principal Investigator: Prof. Mohammed MESSOULI, University Cadi Ayyad, MOROCCO  
Co-Investigators: Dr. Lahouari BOUNOUA, NASA Goddard Space Flight Center Biospheric Sciences, (USA); Dr. Abdelaziz BABQIQI, University Cadi Ayyad

# Meet the 2011 GEC Research Teams

## Water

### ***The Impact of Climate Change on Food Security Among Coastal Communities of Keiskamma, in the Eastern Cape, South Africa***

Principal Investigator: Dr. A. J. RIBBINK,  
Sustainable Seas Trust, SOUTH AFRICA

Co-Investigators: Prof. J.G. RAATS, University  
of Fort Hare, Prof. C. J. deWET, Rhodes  
University, Prof. J. G. ADAMS, Nelson Mandela  
Metropolitan University

### ***Sensitivity of Coastal Lagoon Ecosystems to Climate and Related Global Changes: Developing a North African Lagoons Network***

Principal Investigator: Prof. Maria SNOUSSI,  
University Mohamed V, MOROCCO

Co-Investigators: Prof. Hichem KARA,  
University of Annaba (ALGERIA), Dr. N. TRIGUI  
EL MENIF, Université de Carthage (TUNISIA),  
Dr. Gil MAHE, IRD/HydroSciences Montpellier  
(FRANCE)

### ***Sustainable Farmland Management in the Context of Climate Change in Inland Valleys of Southern Benin***

Principal Investigator: Dr. P. B. Irénikatché  
AKPONIKPE, Université de Parakou, BENIN

Co-Investigators: Dr. K. Euloge AGBOSSOU,  
Université d'Abomey Calavi, Dr. Mohammed  
Nasser BACO, Université de Parakou

### ***Integrating indigenous knowledge and scientific methods for flood risk analyses, responses and adaptation in rural coastal communities in Nigeria***

Principal Investigator: Prof. Oluseyi O. FABIYI,  
Obafemi Awolowo University (Regional Center  
for Training in Aerospace Surveys), NIGERIA

Co-Investigators: Dr. Gabriel AKINBOLA,  
University of Ibadan, Mr. Joseph OLOUKI,  
Obafemi Awolowo University, Ms Thontteh  
OLUFUNMILAYO, Obafemi Awolowo  
University

### ***Impact of Climate Change on Water Resources, Agriculture and Food Security in the Ethiopian Rift Valley: Risk Assessment and Adaptation Strategies for Sustainable Ecosystem Services***

Principal Investigator: Dr. Dagnachew  
Legesse BELACHEW, Addis Ababa University,  
ETHIOPIA

Co-Investigators: Dr. Tewodros Rango  
GODEBO, Duke University (USA), Dr. Behailu  
Atlaw TESHOME, Jimma University, Dr.  
Tenalem Ayenew TESGAYE, Addis Ababa  
University

## Climate

### ***Improving Seasonal Forecast Information for Managing On-farm Decisions***

Principal Investigator: Dr. Olivier CRESPO,  
Climate Systems Analysis Group (CSAG),  
University of Cape Town, SOUTH AFRICA  
Co-Investigators: Dr. Mark TADROSS, CSAG,  
University of Cape Town, Dr. Peter JOHNSTON,  
CSAG, University of Cape Town, Prof. Sue  
WALKER, University of Free State

### ***Engaging Farmers and Climatologists in Adaptation to Climate Variability and Change in the Okavango Delta of Botswana***

Principal Investigator: Dr. Oluwatoyin Dare  
KOLAWOLE, Okavango Research Institute,  
BOTSWANA

Co-Investigators: Dr. Piotr WOLSKI, Okavango  
Research Institute, Ms. Barbara Ntombi  
NGWENYA, Okavango Research Institute, Dr.  
G. MMOPLELWA, Okavango Research Institute

### ***The Application of Earth Observation Methods for Monitoring and Assessment of Agro-forestry in Senegal and Ghana***

Principal Investigator: Dr. Cheikh MBOW,  
Université Cheikh Anta Diop, SENEGAL  
Co-Investigators: Dr. David SKOLE, Michigan  
State University (USA), Dr. Vincent VON  
VORDZOGBE, University of Legon (GHANA),  
Dr. Emmanuel Morgan ALLOTEV, University of  
Legon (GHANA), Dr. Ngor NDOUR, Université  
de Ziguinchor



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## Agriculture

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### ***Community-Based Management of Ecosystems and Natural Resources for the Improvement of Rural Livelihoods and Food Security in the Nigerian Savannah***

Principal Investigator: Dr. Mayowa Johnson  
FASONA, University of Lagos, NIGERIA  
Co-Investigators: Dr. Grace ADENIJI, Lead  
University, Dr. Felix Bayode OLURUNFEMI,  
Nigerian Institute of Social and Economic  
Research, Dr. Peter Omu ELIAS, University of  
Lagos, Dr. Vide ADEDAYO, University of Lagos

### ***The Role of Urban and Peri-Urban Agriculture in Enhancing Food Security and Climate Change Resilience in East and West African Cities***

Principal Investigator: Dr. Shuaib LWASA,  
Makerere University, UGANDA  
Co-Investigators: Dr. Bolanle WAHAB,  
University of Ibadan (NIGERIA), Dr. Frank  
MUGAGGA, Makerere University, Prof.  
David SIMON, Royal Holloway University of  
London (UK), Dr. Michail FRAGKIAS, UGEC  
International Project Office, Arizona State  
University (USA)

### ***Assessing Adaptation Responses by Smallholder Farmers in Northern Ghana to Climate Change and Biodiversity Loss***

Principal Investigator: Dr. Yaw OSEI-OWUSU,

Conservation Alliance International, GHANA  
Co-Investigators: Prof. Ramatu AL-HASSAN,  
University of Ghana, Ms. Ernestina DOKU-  
MARFO, Conservation Alliance International

### ***Climate Change Adaptation for Rural Communities Dependent on Agriculture and Tourism in Marginal Farming Areas of the Hwange District, Zimbabwe***

Principal Investigator: Dr. Charles  
NHEMACHENA, Council for Scientific &  
Industrial Research (CSIR), SOUTH AFRICA  
Co-Investigators: Dr. Reneth MANO, University  
of Zimbabwe (ZIMBABWE), Mr. Shakespear  
MUDOMBI, Tshwane University of Technology

### ***Targeting Crop Yield Increases Under Future Climate for Greater Food Security in the Upstream Catchment of Lake Victoria Basin***

Principal Investigator: Mr. John Ejiet WASIGE,  
Faculty of Agriculture, Makerere University,  
UGANDA

Co-Investigators: Dr. Jane BEMIGISHA,  
International Foundation for Science (IFS),  
Dr. Gerald EILU, Faculty of Agriculture,  
Makerere University, Mr. Timothy LUBANGA,  
Ministry of Disaster Preparedness, Prof.  
Adrie MUKASHEMA, National University of  
Rwanda (RWANDA), Prof. Jean-Berchmans  
MBAZUMUTIMA, Institut Geographique du  
Burundi (IGEBU) (BURUNDI), Mr. Ladislaus  
KYARUZI, Division of Environment, Vice  
President's Office (TANZANIA)

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## Ecosystems

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### ***Reducing Tropical Deforestation and the Protection of Ecosystem Services to Support Food Security in Southwest Cameroon***

Principal Investigator: Dr. Gordon Nwutih  
AJONINA, Cameroon Wildlife Conservation  
Society (CWCS), CAMEROON  
Co-Investigators: Dr. George Bindeh  
CHUYONG, University of Buea, Ms. USONGO,  
Patience Abaufei, University of Buea

### ***Changes in tree reproductive phenology: Causes and implications in and around Budongo Forest Reserve, Uganda***

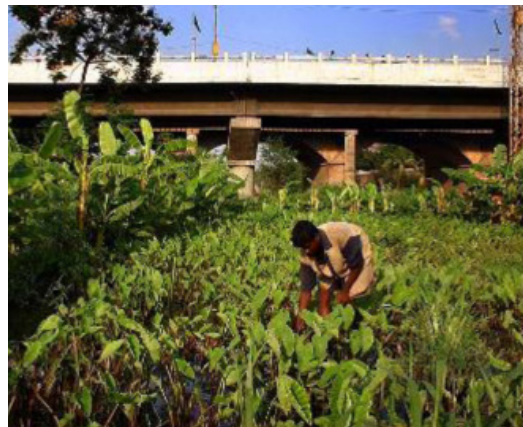
Principal Investigator: Dr. Fred BABWETEERA,  
Budongo Conservation Field Station, UGANDA

Co-Investigators: Prof. Philip NYEKO,  
Makerere University, Dr. Jacob AGEA, Makerere  
University, Dr. Andrew PLUMPTRE, Wildlife  
Conservation Society (USA/UGANDA)

### ***Management of Ecosystems Services of the Forests of Southwest Nigeria in Support of Rural Livelihoods and Food Security***

Principal Investigator: Dr. Victor Jimoh Ajibola  
ADEKUNLE, Federal University of Technology,  
NIGERIA

Co-Investigators: Dr. James Olaniyi  
OKUNLOLA, Federal University of Technology,  
Dr. David Olarewaju OKE, Federal University of  
Technology




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# Assessments of Urban and Peri-urban Agriculture and Climate Change

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START, in partnership with UNEP, WMO, IPCC, the University of Ghana, the University of Dar es Salaam and the Bangladesh Centre for Advanced Studies, launched a 9-city assessment on urban and peri-urban agriculture and climate change. The assessments are being carried out in Dakar, Senegal; Tamale, Ghana; Ibadan, Nigeria; Dar es Salaam, Tanzania; Kampala, Uganda; Addis Ababa, Ethiopia; Dhaka, Bangladesh; Kathmandu, Nepal; and Chennai, India.

The assessments focus on how rapid urbanization and global environmental change, including climate change, could affect food produced in and around these cities. Such production systems generate much of the fresh fruits and vegetables, poultry, eggs, fish, dairy, and other non-staple foods in cities that contribute significantly to dietary diversity for urban dwellers and are a key livelihood resource of the urban poor. The assessments aim to broaden understanding of the climate-related

risks to urban and peri-urban agriculture and to the livelihoods of producers and those involved in the urban food system, such as processors, transporters, storers, and marketers.

The assessments were launched with regional stakeholder workshops in Accra, Addis Ababa and Kathmandu. During these workshops, urban agriculture researchers, NGO representatives, representatives of farmer-based organizations, city government officials, and ministerial representatives came together to refine the assessment topic to fit the needs of their respective cities and develop communication strategies for informing a wide range of decision-makers about the findings of the assessment. The assessment will conclude in 2012 and is co-supported by the European Commission and UNEP, with additional support from USAID.

For more information, please visit <http://start.org/programs/upa>





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## Engagement with the Climate Change, Agriculture and Food Security (CCAFS) Initiative

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START, together with the Forum for Agricultural Research in Africa (FARA) and the Climate Change, Agriculture and Food Security (CCAFS) initiative, convened a regional dialogue on climate change, agriculture, and food security in semi-arid West Africa. The dialogue, which took place in Niamey, Niger, examined climate change risks to pastoral and agro-pastoral systems in the West African Sahel, opportunities for adaptation, and policies and measures needed to support adaptation planning. Participants included scientists and NGO representatives from Niger, Mali, Burkina Faso, and Senegal and policy makers from Niger.

The dialogue examined how the increased incidence of heavy downpours and flooding are straining food production systems and food security in a region that is already challenged by high intra- and inter-annual climate variability, recur-

rent drought, and warming temperatures. The dialogue also explored new research approaches for agriculture and food security in light of significant adaptation needs in the region. In this regard, participants concluded that a more holistic approach to research is needed that more fully considers the sustainability of the whole farming system, local knowledge of environmental variability in agricultural landscapes, farm and non-farm livelihood streams, and flashpoints for conflict between different pastoralist and non-pastoralist groups.

The Final Report for the regional dialogue is available for download at <http://start.org/download/2011/ccafs-niger.pdf>. START anticipates increased engagement with CCAFS in 2012 and subsequent years.



# Innovations in Education

START promotes innovative approaches to research and education in Africa and Asia-Pacific that emphasize experiential learning and integrate teaching, research, and practice. In 2010-2011, START convened a major forum on the role of universities in supporting adaptation and expanded its *African Climate Change Fellowship Program*. START is committed to working with universities to support their potential to be active agents of change in helping society adapt to climate change and other impacts from global environmental change. START believes that a well-informed citizenry, responsive institutions, and problems-focused knowledge generation are critical to achieving a more sustainable future.






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## Forum on Education, Capacity Building, and Climate Change: A Strategy for Collective Action in Africa

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The International START Secretariat, with generous support from the Open Society Institute (OSI), organized and convened a *Forum on Education, Capacity Building, and Climate Change: A Strategy for Collective Action in Africa*, held in Dar es Salaam, Tanzania in June 2010. The purpose of the forum was to explore the role of African universities in promoting education on climate change adaptation in the areas of research, curriculum development, and teacher training, as well as to examine issues of how to more fully engage civil society on adaptation through education aimed outside the university.

The forum solicited input from a diverse range of experts within Africa, with the intention of informing OSI's recent initiative on education and adaptation. Approximately 155 participants from nearly 40 countries joined the forum, representing universities and research institutions, civil society organiza-

tions, international organizations such as the African Union, government entities, and the media.

The main outputs of the 2010 Forum were a strategy for near, medium and long-term actions to support education, research, and outreach on adaptation in Africa and the formation of the African Climate Research and Education Network (ACRE-Net) to develop and implement actions to support this strategy.

START is committed to fostering periodic fora on issues relevant to the strategy defined in the 2010 Forum. Over the next two years, priority will be given to promoting opportunities like these that encourage development of innovative curricula and research approaches and that integrate research into teaching.

For more information, please visit <http://start.org/forum2010>

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# African Climate Research & Education Network (ACRE-Net)

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A key outcome of the June 2010 *Forum on Education, Capacity Building, and Climate Change* (described on page 13) was the creation of the African Climate Research and Education Network (ACRE-Net). The network provides a means for forum participants and others to share information and develop partnerships to jointly initiate actions.

Priority areas of emphasis for ACRE-Net include: 1) curriculum development for enrichment of existing programs on climate change and creation of new courses for mainstreaming climate change across disciplines; 2) staff development, including “training of trainers”, to develop, enhance, and maintain excellence in teaching and research in climate change education; 3) partnerships and participation for transforming research and education, with an emphasis on trans-boundary efforts; 4) bridging science and society; 5) education beyond the university for reorienting university structures to play a larger role in supporting societal efforts to adapt to climate change; and 6) innovation in climate education to tackle the various barriers in climate change education.

The range of potential partnerships in ACRE-Net is broad, encompassing south-north and south-south university partnerships as well as partnerships between the university and civil society, the private sector, the Africa diaspora, the government and non-university research institutes.

START and African university partners are working together to promote ACRE-Net. One activity of the Network, a collaborative investigation of challenges and prospects of REDD in Africa, led by colleagues at the University of Cheikh Anta Diop (Senegal), is already underway. An additional near-term action of the network will be to do a targeted stocktaking of universities, NGOs, other civil society organizations, and research institutes that are involved in climate change related activities in Africa, and through this process identify where partnerships currently exist and where there may be opportunities for expanding these as well as developing new ones.

For more information on ACRE-Net, please visit <http://start.org/acre-net>.







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# African Climate Change Fellowship Program (ACCFP)

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START, in partnership with the Institute of Resource Assessment (IRA) at the University of Dar es Salaam and the African Academy of Sciences (AAS), managed the inaugural phase of the *African Climate Change Fellowship Program (ACCFP)*. The ACCFP supports African professionals, researchers, educators, and postgraduates to undertake activities that enhance their capabilities for advancing and applying knowledge for climate change adaptation in Africa.

Participating Fellows receive small grants that enable them to visit other institutions — “Host Institutions” — where they collaborate with mentors to implement individually-designed projects that, for example, assess and prioritize climate risks, investigate current practices for designing and implementing adaptation projects, consider approaches for integrating adaptation with planning and practice, and/or develop and implement curriculum that promotes integration of climate change and climate change adaptation into graduate level education.

In addition, all ACCFP Fellows participate in periodic program workshops and seminars that offer opportunities for them to interact face-to-face with each other, program staff and other members of the international climate change community. Program workshops include targeted training sessions that add value to the research experience and challenge Fellows to step “outside the box” in considering the role and potential contributions of their individual work within broader efforts to address climate change adaptation challenges in Africa.

ACCFP workshops are generally organized in conjunction with regional or international conferences so as to foster and enable new opportunities for international cooperative research, partnerships, and exchange. Such integrative program activities, particularly those that enable Fellows to be exposed to and participate in discussions, exercises and debates with an international community of experts, are recognized as a critical component of the ACCFP success story.

## Phase I of the ACCFP

During Phase I of the program (2008/2010), ACCFP Fellowships were awarded to 45 individuals from 40 institutions in 18 African countries. Many Fellowship projects directly supported adaptation decision-making, and tangible and sustained links were made between institutions in Africa that had not interacted prior to program participation. In December 2010, the first class of Fellows graduated from the ACCFP. The Fellows were recognized in a graduation ceremony that took place during the ACCFP Phase I Culmination Conference, held 8-10 December 2010 in Dakar, Senegal. During the conference, ACCFP Fellows as well as their Host and Home institution supervisors, presented their research as it related to the confer-

ence theme: “Climate change in Africa: Research insights on adaptation at local and regional/sub-regional scales”.

Over the course of the conference, participants also helped START, IRA, and the Climate Change Adaptation in Africa (CCAA) program to identify key lessons learned from the ACCFP experience, discussing opportunities for and potential challenges to building on the success of the Phase I effort in promoting adaptation science in Africa. Program alumni have gone on to excel in institutions across the continent and are the inaugural members of a cadre of African climate change professionals ready and willing to promote adaptation policy and actions.



## Phase II of the ACCFP

Phase II of the ACCFP was initiated in early 2011 and includes two overlapping rounds of Fellowship awards and supporting activities. During Phase II of the program, a total of 50 Fellowships will be awarded, distributed across the following categories: Adaptation Science Fellowships, Adaptation Policy Fellowships, and Adaptation Teaching Fellowships. The first 23 ACCFP awards for Phase II were announced in August 2011. See page 17 for a list of Fellowship recipients. A second Call for Applications is expected in late 2011.

In December 2011, a number of ACCFP Alumni, Fellows, and staff will participate in the UNFCCC COP-17 in Durban, South Africa.

Phase II of the ACCFP is managed by IRA at the University of Dar Es Salaam and is implemented in partnership with the International START Secretariat, with support from the CCAA program. For more information about the ACCFP, please visit <http://start.org/programs/accfp1> and [www.accfp.org](http://www.accfp.org)



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## ACCFP Adaptation Science Fellows 2011

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**Amidu Olowabi AYENI**, Nigeria  
Home: University of Lagos  
Host: CSIR - Pretoria

**Georges DJOHY**, Benin  
Home: University of Parakou,  
Faculty of Agronomy  
Host: NISER, Nigeria

**Koulou Jeremie FONTODJI**,  
Togo  
Home: Université de Lomé,  
Faculté des Sciences  
Host: Université de Parakou,  
Benin

**Martial GAPIA**, Central African  
Republic  
Home: Université de Bangui,  
Département de Géographie  
Host: CIFOR - Central Africa  
Regional Office

**Bernard Kibet KIRUI**, Kenya  
Home: Kenya Marine and  
Fisheries Research Institute  
Host: IRA-UDSM

**Yao Etienne KOUAKOU**, Côte  
d'Ivoire  
Home: Centre Suisse de  
Recherches Scientifiques  
Host: CDRT, University Cadi  
Ayyad

**Adnew MEKONNEN**, Ethiopia  
Home: Addis Ababa University  
Host: International Water  
Management Institute (IWMI)

**Grace MUDOMBI**, Zimbabwe  
Home: University of Zimbabwe  
Host: IRA-UDSM

**Tolo Cassim MUMBA**, Uganda  
Home: Mbarara University of  
Science & Technology  
Host: IRA-UDSM

**Francis Opiyo OMONDI**, Kenya  
Home: University of Nairobi  
Host: African Technology  
Policy Studies Network (ATPS)

**Hodabalo PEREKI**, Togo  
Home: Université de Lomé  
Host: CIFOR - West Africa  
Regional Office

**Armel SAMBO**, Cameroon  
Home: Institut Supérieur du  
Sahel (ISS) – Université de  
Maroua  
Host: CDRT, University Cadi  
Ayyad

**Galine YANON**, Chad  
Home: Université Cheikh Anta  
Diop, Dakar  
Host: AGRYHMET Regional  
Center – Nigeria

**Bamutaze YAZIDHI**, Uganda  
Home: Makerere University  
Host: Makerere University

---

## ACCFP Adaptation Policy Fellows 2011

---

**Happison CHIKOVA**,  
Zimbabwe  
Home: Help Initiatives for  
People Organisation  
Host: IRA-UDSM

**Charlotte Fonochu ENJOH**,  
Cameroon  
Home: Consultants and  
Intermediaries in Mining,  
Energy and Environment  
Host: Cameroon Wildlife  
Conservation Society (CWCS)

**Seth KAYOMBA**, Uganda  
Home: Biodiversity  
Conservation for Rural  
Development (BCRD) - Uganda  
Host: Egerton University

**Bessie MADZIWA**, Zimbabwe  
Home: Zvishavane Water Proj.  
Host: IRA-UDSM

**Luc Lango MUMBERE**,  
DR Congo  
Home: Tanya Center for  
Conservation Biology  
Host: IRA-UDSM

**Rutendo NHONGONHEMA**,  
Zimbabwe  
Home: Ministry of Agriculture,  
Mechanisation and Irrigation  
Development  
Host: Walker Institute for  
Climate System Research,  
University of Reading

**Godfrey OLUKA**, Uganda  
Home: Kampala Capital City  
Authority  
Host: Walker Institute for  
Climate System Research,  
University of Reading

**Comlan Medard  
OUINAKONHAN**, Benin  
Home: Direction Générale de  
l'Environnement du Ministère  
de l'Environnement et de la  
protection de la nature  
Host: Université de Parakou

**Mahlalele Eunice THLALI**,  
Lesotho  
Home: Dept. of Water Affairs  
Host: WaterNET



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## Land Use, Ecosystems & Biodiversity

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Climate change coupled with land-use and land-cover changes and other natural and anthropogenic stressors alter ecosystem structure and function, modify biogeochemical cycles and affect the availability of ecosystem goods and services critical for sustaining human livelihoods. Enhancing knowledge of such impacts among key stakeholder groups, building relevant skills and enabling access to data and tools are critical needs for supporting adaptive responses. START is actively engaged in meeting these needs through its education and training program for practitioners and educators from the Albertine Rift region and through its GOFC-GOLD fellowship and training program for young scientists from Africa and Asia.





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# Global Observation of Forest Cover and Land Dynamics (GOFC-GOLD)

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The GOFC-GOLD program, supported by the US National Aeronautics and Space Administration (NASA), facilitates access by developing country scientists and institutions to NASA's earth observation data and enhanced use and application of the data. GOFC-GOLD activities target land-use and land-cover change related issues as they relate to forestry, fire disturbance, agriculture and carbon cycle dynamics. The program is jointly implemented by the International START Secretariat, USGS Earth Resources Observations and Science (EROS) Center on earth observation data, Boston University, the University of Maryland and others, in cooperation with the GOFC-GOLD Project Office and its Regional Networks.

A new 3-year grant from NASA, awarded to START in 2011, will extend and expand START's engagement with GOFC-GOLD by establishing the *GOFC-GOLD Fellowship Program*. Fellowships are available to developing country scientists and include training at USGS/EROS, followed by participation in an advanced training institute focused on data analysis and applications

related to priority theme(s) of the GOFC-GOLD project.

START's most recent grant from NASA also provides continued support for GOFC-GOLD related meetings and workshops to promote opportunities for information exchange and training for Regional Network members. Meetings that were supported during the past year include the Central Asia Data Initiative Workshop, Uzbekistan, November 2010; the Latin American Network of Remote Sensing and Forest Fires (REDLATIF), Mexico, November 2010; and the GOFC-GOLD South Africa Fire Regional Network Meeting and 5th International Wildland Fire Conference, South Africa, May 2011. These workshops made important contributions to the development of a handbook on REDD+ that is now widely used by the UNFCCC and national scale planners.

For more information, please visit <http://start.org/programs/gofc-gold>



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## Biodiversity Conservation Under a Changing Climate

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This education and training program for Biodiversity Conservation targets experiential learning on managing emerging risks from climate change to biodiversity in the Albertine Rift region of Africa, a biodiversity hotspot that encompasses parts of Tanzania, Burundi, Rwanda, Congo, and Uganda. The International START Secretariat and the Pan-African START Secretariat (PASS), based at the Institute of Resource Assessment (IRA), University of Dar es Salaam, jointly implement this effort with funding from the MacArthur Foundation.

The program, begun in 2008 and hosted at IRA, has successfully engaged conservation practitioners, researchers, and university faculty from the region in Masters-level courses and field-based externships. The courses, developed with input from international experts, focus on combined impacts from climate change and other stresses on biodiversity and strategies for adaptation. Externships provide a hands-on opportunity to apply knowledge

from the courses to field assessments. In 2010, during which the second of two rounds of the program was implemented, a training of trainer's session for regional university faculty was added to other program activities, supported by on-line distance learning modules that offer guidance in teaching and curriculum development on climate change and conservation. A regional stakeholder dialogue, planned for late 2011, will share findings from the externship assessments.

The program has helped foster a network of individuals and institutions in the Albertine Rift region engaged in addressing climate change risks to biodiversity. The existing Masters Program in Natural Resource Assessment and Management at IRA has also benefited from integration of courses from this capacity building initiative into its curriculum.

For more information, please visit <http://start.org/programs/biodiv>



# 2010 Assessments of Ecosystems & Biodiversity and Course Participants

## Burundi

*Impact of Climate Change on Water Resources in and around Kibira National Park, Burundi*

Host Institution: Burundi Nature Action  
Supervisor: Dr. Elias BIZURU

Participants: Ndereyimana EMMANUEL,  
Savin SABUMUKIZA, Kigeme Marie ANGE,  
Firmin NTIPIRANGEZA

## DR Congo

*Impact of Climate Change on Biodiversity and Livelihood in the Central Part of Virunga National Park, Democratic Republic of Congo*

Host Institution: Tayna Center for Conservation Biology  
Supervisor: Dr. Arthur KALONJI

Participants: Bombi KAKOGOZO, Joelle MUKUNGU, Hermes MUSHAYUMA,  
Lango MUMBERE, Edouard ILUNGA,  
Kalinde RIZIKI KABWE

## Rwanda

*Impact of Climate Change and Climate Variability on Mountain Gorillas' Ranging Movements: A Case Study of Volcanoes National Park, Rwanda*

Host Institution: Department of Biology, National University of Rwanda  
Supervisor: Dr. Elias Bizuru

Participants: Alphonse MUTUYEYEZU,  
Abel MUSANA, Rurangwa FELIX, Gaspard RWANYIZIRI, Manzi Biranga J. CLAUDE

## Tanzania

*Impact of climate change on biodiversity and livelihoods in the Katavi [National Park] ecosystem*

Host Institution: Institute of Resource Assessment, University of Dar es Salaam  
Supervisor: Dr. Richard KANGALawe

Participants: Godwell Ole MEINGATAKI,  
Seif SALUM, Candida E. MWINGIRA,  
Nancy PIMA, Elisa Manase PALLANGYO,  
Hamoud HAMISI, Reguli Baltazar MUSHY, Alex KISINGO

## Uganda

*Community and Park Management Adaptability to the Impacts of Climate Change in Queen Elizabeth National Park*

Host Institution: Department of Biology, Mbarara University  
Supervisor: Dr. Julius LEJJU

Participants: Sarah NAMUBIRU, Kapere RICHARD, Anthony TUMWESIGYE,  
Natwijuka Seth KAYOMBO, Erima GODWIN, Robert SSENFUMAR



# Communication

Society's ability to anticipate and respond effectively to climatic and global environmental change is constrained by inadequate knowledge of current and future impacts and vulnerability, under-resourced institutions, and lack of awareness among key decision-makers about the potential extent of global change risks to socio-economic development and environmental sustainability. Fostering a better-informed society on issues of global environmental change requires encouraging dialogue between the research community and communities of policy and practice, as part of a larger effort to build capacity for effective communication and knowledge sharing. START is very active in this effort.






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# National Level Science-Policy Dialogues on Climate Change and Development

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START, in partnership with the WMO, UNEP, IPCC, the University of Ghana, the University of Dar es Salaam, and the Bangladesh Center for Advanced Studies engaged scientists, policy makers and others in science-policy dialogues in nine countries spanning West Africa, East Africa, and South Asia. The purpose of the dialogues was to enable decision-makers to better integrate climate change issues into development planning and poverty reduction measures. In 2010, science-policy dialogues were convened in Ghana, Nigeria, Senegal, Tanzania, Rwanda, Burundi, Bangladesh, Nepal, and Bhutan.

An important outcome of these multi-stakeholder dialogues was the identification of potential policy responses to

support adaptation, the need for better enforcement of existing policies and regulations that govern environmental protection, disaster response, and food security, and the need for targeted programs to build capacity in the areas of climate services, integrated research and assessment, and climate change communication. Adaptation to climate change is becoming an increasingly urgent issue for many countries. These national dialogues are helping to address awareness raising about key aspects of adaptation and to identify needs for sector- and location-specific knowledge that can support much-needed action.

The dialogues were co-supported by the European Commission and UNEP. For more information, please visit <http://start.org/programs/ccmap>

# Highlights of Science-Policy Dialogues on Climate Change



## Bangladesh

85 participants representing Ministries of Environment & Forestry and Agriculture, Parliamentary Committee on Climate Change, the Bangladesh Planning Commission, UN agencies, private sector, environmental and development NGOs, the media, national scientists, and IPCC authors

### Discussion topics included:

Extreme vulnerability of Bangladesh's coastline to sea-level rise, link between temperature rise and cholera, vulnerability of fisheries to temperature rise, increased flooding risks in Dhaka and increased drought risk in northwestern Bangladesh, and implications of Himalayan glacier retreat on managing water in the deltaic country



## Bhutan

78 participants representing Parliament, Ministries of Education, Agriculture, and Economic Affairs, the National Environment Commission, the Gross National Happiness Commission, Departments of Public Health and of Forests and Park Services, environmental and development NGOs, national scientists, and IPCC authors

### Discussion topics included:

Glacier melt in the Himalayas and glacial lake outburst, vulnerability of infrastructure to flooding, vulnerability of hydropower to climate change, loss of biodiversity, poor coordination among Ministries for addressing climate change risks, and need for integrating climate change issues into Bhutan's tourism policies



## Nepal

86 participants representing the Ministry of the Environment, environment and development NGOs, the World Bank, national scientists and IPCC authors, National Planning Commission, and the media

### Discussion topics included:

Glacier melt in the Himalayas and glacial lake outburst, infrastructure redesign to accommodate increase in extreme events, vulnerability of hydropower to climate change including increased sedimentation of reservoirs, inadequate implementation and enforcement of environmental laws, and the need for Nepali scientists to publish more widely



## Ghana

60 participants representing Members of the Ghana Parliamentary Select Committee on Environment and Science, natural resource management professionals, senior management and officials from Ghana's various Ministries, Departments and Agencies, members of the National Climate Change Committee, the media, members of the academic community, NGOs, and IPCC authors

### Discussion topics included:

Environmentally unsustainable coastal development that could be further impaired by climate change; drought and deforestation in semi-arid northern Ghana; effective strategies for engaging society on climate change issues important to Ghana, and educating the next generation of decision-makers about climate change





## Tanzania

66 participants representing Tanzania's Vice President's office, Ministries, including Water & Irrigation, Natural Resources & Tourism, and Forestry & Beekeeping, university scientists, environmental NGOs, representatives from Zanzibar, the media, and IPCC authors

### Discussion topics included:

Glacier retreat on Kilimanjaro as evidence of warming, the need for increased observations networks, the need for better inter-Ministerial planning to address long-term climate change risks to food security, increased human disease burden, and the loss of traditional medicinal plants, and impacts of climate change on East Africa's rich biodiversity heritage



## Nigeria

54 participants representing Ministries of Health, Environment, and Agriculture and Water Resources, private sector interests in cocoa and forest management, university researchers, and IPCC authors

### Discussion topics included:

Sea-level rise risks to Lagos and other coastal urban areas, environmental degradation in the Niger delta caused by oil drilling, how to sustain Nigeria's best agriculture land in the face of climate change risks, and addressing poorly functioning systems for data management in order to better enable national research on climate change



## Senegal

56 participants representing Senegal's parliament, Ministries, including Agriculture, Environment, and Social planning, Mayoral officials, university scientists, natural resource management professionals, NGO representatives, and IPCC authors

### Discussion topics included:

Climate change and water resource conflicts, threats of climate change to food security through diminished production of fisheries and of rainfed agriculture in dryland environments, vulnerability to storm surge, and sea-level rise of humans concentrated in Senegal's coastal zone



## Rwanda

50 participants representing Ministries of the Environment and Agriculture, the Rwanda Environmental Management Authority, university scientists, NGO representatives, members of the media, and IPCC authors

### Discussion topics included:

Knowledge and capacity gaps for understanding climate processes over central Africa, loss of biodiversity, potential and pitfalls of REDD for addressing deforestation, spread of livestock pests and diseases and spread of malaria to non-endemic areas, and need for more observational data to establish baseline conditions



## Burundi

81 participants representing parliament, the Ministry of Water, Environment, Land Management and Urban Planning, the Burundi Forestry Department, university scientists, NGO representatives, members of the media, and IPCC authors

### Discussion topics included:

The need for developing appropriate models and skills to use these models, more observational studies by interdisciplinary teams, and enhanced access to data; loss of biodiversity, potential and pitfalls of REDD for addressing deforestation, spread of livestock pests and diseases and spread of malaria to non-endemic areas



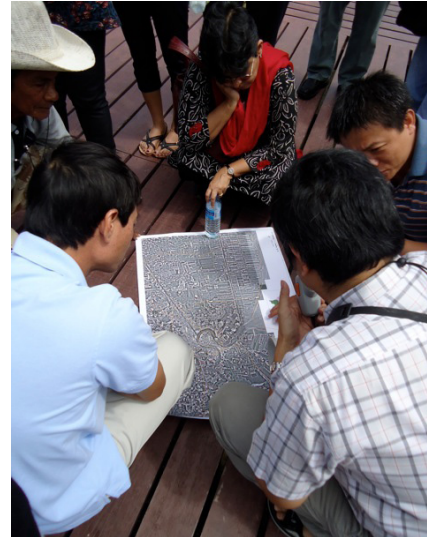
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# Climate Change & Cities

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Global environmental change in urban areas, particularly coastal cities at risk, is one of the fastest growing parts of START's portfolio in Asia and is becoming an increasingly important part of START's work in Africa. START supports and carries out a number of activities each year with the aim of building adaptive capacities for managing and reducing risks and vulnerabilities brought on by the combined effects of climate change and rapid urban growth. Activities in 2010-2011 included an international conference, an intensive regional training workshop, and city-specific research and training activities.






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# Cities at Risk (CAR): Building Adaptive Capacities for Managing Climate Change Risks in Asia's Coastal Megacities

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The International START Secretariat partners with the Southeast Asia START Regional Research Center (SEA-START RRC) and several other organizations to promote the development of urban adaptive capacities in Asia's coastal megacities, with particular emphasis on the integration of science and policy in managing climate risks. Recent program efforts have focused on the limited analytical capacity that currently exists in many urban centers to carry out integrated risk and vulnerability assessments to inform development planning.

In August 2010, SEA-START RRC, together with the International START Secretariat, the East-West Center, Ibaraki University, United Nations University, and the Manila Observatory, co-organized the week-long *International Workshop on Climate Change Vulnerability Assessment & Urban*

*Development Planning for Asian Coastal Cities*. The training workshop, funded by the Asia-Pacific Network for Global Change Research (APN) and the International START Secretariat, brought together teams of scientists, urban planners, managers, and researchers from four cities in Southeast Asia to investigate approaches to and enhance individual capacities for implementing climate change risk and vulnerability assessments in their cities. City teams also examined the application of such assessments to urban development planning and governance. Workshop exercises catalyzed the preparation of proposals by many teams to carry out integrated assessments and other city-based activities aimed at linking science to user needs.

# Second International Conference on Cities at Risk(CAR II)

The International START Secretariat also collaborated with the East-West Center and CCaR (Canada) to co-convene the *Second International Conference on Cities at Risk: Building Adaptive Capacities for Managing Climate Change Risks in Asian Coastal Cities (CAR II)*, held 11-13 April 2011 in Taipei, Taiwan. Conference sessions showcased and assessed progress to date of CAR-engaged city research teams. Participant exercises and discussions improved understanding of the opportunities and challenges for consolidating a network of researchers, decision-makers, and institutions in the region and identified priorities for CAR programming in Asia for the next several years. CAR II was sponsored by the Integrated Research on Disaster Risk (IRDR) International Center of Excellence in Taipei and hosted by the Academia Sinica, Taipei. Conference recommendations and next steps will be synthesized in a monograph, to be published by the Center in early 2012.

For more information, please visit <http://start.org/programs/cities-at-risk>

## CAR in North Jakarta, Indonesia

Enabled by funding from the US Agency for International Development (US-AID), new city-specific CAR activities have been initiated in North Jakarta, Indonesia. Collaborative activities include city-specific training and communication opportunities that build on previous CAR experiences and respond to identified city needs. Additional work is expected to begin in at least two more cities in early 2012. As efforts progress, city teams will come together to explore key insights and lessons among their cities and implications of these lessons learned for climate change adaptation in urban areas across Asia and elsewhere in the developing world. For updates, please visit <http://start.org/programs/cities-at-risk>





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# Coastal Cities at Risk (CCaR)

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The International START Secretariat is providing capacity building support to a new project co-led by SEA-START RRC and partners at the University of Western Ontario (Canada) entitled *Coastal Cities at Risk (CCaR)*. The CCaR project is facilitating research and knowledge exchange between cities in Southeast Asia, West Africa, and Canada that informs development of strategies and methodologies to integrate climate change adaptation and disaster risk reduction. The project includes specific investigation of the socio-economic and health implications of inte-

grated climate change adaptation and disaster risk reduction strategies for the cities and will produce interdisciplinary simulation models for knowledge-based adaptation actions. Project teams include both academics and practitioners.

START's contribution to the CCaR project serves as a first step in expanding the organization's CAR focus to Africa. Plans are underway to initiate additional CAR activities in Africa in 2012.

For more information, please visit <http://start.org/programs/ccar>

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## Urban Poverty and Climate Change in Dar es Salaam, Tanzania: A Case Study

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Over 70% of Dar es Salaam's four million residents live in informal, unplanned settlements. Over half of them survive on roughly \$1 per day. With a population growth rate of approximately 8% per year, Dar es Salaam is one of the fastest-growing cities in sub-Saharan Africa. City and municipal authorities face significant challenges in providing new or even maintaining adequate, existing infrastructure and services for this increasingly vulnerable population.

The International START Secretariat and the Institute of Resource Assessment at the University of Dar es Salaam recently partnered with Ardhi University and the Tanzania Meteorological Agency to assess key aspects of vulnerability of the urban poor in Dar es Salaam and to understand how climate risks magnify these vulnerabilities.

The study identified a number of actions, policies, and programs with potential to increase the resilience of Dar es Salaam to climate change, including possibilities for reducing urban greenhouse gas emissions while also generating local benefits with respect to human health and livelihoods of the urban poor.

The Dar es Salaam study was one of four urban case studies initiated by the World Bank Institute and Mayors' Task Force for Urban Poverty and Climate Change in 2010.

For more information and to download the case study report, please visit <http://start.org/programs/dar-urban-poverty>



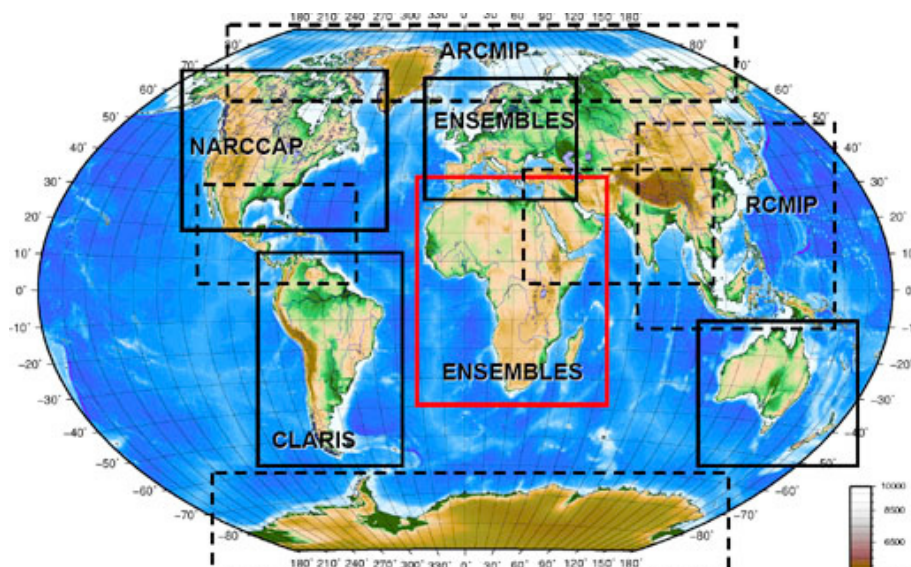
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# Climate Services

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Strengthening the provision and use of climate predictions, products, and information worldwide is critical for supporting long-term planning on adaptation. Such climate services need to both communicate relevant information and at the same time build capacity to ‘translate’ that information to non-expert stakeholders in ways that can be acted upon. To advance this effort, START is teaming up with the World Climate Research Program, the University of Cape Town and other organizations to promote capacity building on climate services.





# Coordinated Regional Downscaling Experiment (CORDEX) in Africa

The *Coordinated Regional Downscaling Experiment (CORDEX)* program was recently initiated by the World Climate Research Program with the aim of developing an international coordinated framework for generating improved regional climate change projections worldwide. For Africa, CORDEX presents an unprecedented opportunity to advance knowledge of regional climate responses to global climate change, and for these insights to feed into on-going climate adaptation and risk assessment research, policy planning, and development in the region.

START is partnering with the University of Cape Town's Climate Systems Analysis Group, the World Climate Research Program, the Climate and Development Knowledge Network, the International Centre for Theoretical Physics, the Swedish Meteorological-Hydrological Institute, and UNDP's Africa Adaptation Program to develop an Africa-wide training pro-

gram that aims to develop capacity and expertise within the region to analyze, interpret and apply CORDEX results to decision-making in terms that are relevant to Africa's knowledge needs.

The climate data training program, which is being led by the University of Cape Town's Climate Systems Analysis Group, targets climate scientists and meteorologists from national meteorological services in Africa as well as researchers and development professionals who work in areas of disaster risk reduction, agriculture and food security, human health, and water management. The CORDEX-Africa program is the beginning of a multi-year engagement of these and other partners in building capacity for integrating climate model information into adaptation planning.

For more information, please visit <http://start.org/programs/cordex-af>

# CORDEX-Africa 2011 Program Participants

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## Benin

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**Agnidé Emmanuel LAWIN**  
University of Abomey-Calavi

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## Burkina Faso

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**Ulrich DIASSO**  
National Meteorological Service of  
Burkina Faso

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## Cameroon

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**Andre KAMGA**  
African Center of Meteorological  
Applications for Development

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## Ghana

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**Benjamin LAMPTEY**  
Regional Maritime University, Ghana  
  
**Kwadwo OWUSU**  
University of Ghana

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## Kenya

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**Philip OMONDI AMING'O**  
IGAD Climate Predictions and  
Applications Center  
  
**Patrick KETIEM**  
Kenya Agricultural Research Institute

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## Malawi

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**Lucy MTILATILA**  
Malawi Meteorological Services

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## Nigeria

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**Philip OGUNTUNDE**  
Federal University of Technology

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## Senegal

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**Bamba SYLLA**  
Intl Center for Theoretical Physics

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**Abdoulaye SARR**  
National Meteorological Agency of Senegal

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## South Africa

---

**Nana BROWNE**  
University of Cape Town

---

**Temesgen DERESSA**  
University of Pretoria

---

**Francois ENGLEBRECHT**  
Council for Scientific and Industrial  
Research

---

**Regina MZIME**  
University of Western Cape

---

**Gugu ZUMA-NETSHIUKHWI**  
Agricultural Research Council of  
South Africa

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## Swaziland

---

**Mxolisi SHONGWE**  
Ministry of Tourism & Environmental  
Affairs

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## Uganda

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**Lukiya TAZALIKE**  
Ugandan Meteorological Agency

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## Tanzania

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**Ladislaus CHANG'A**  
Tanzanian Meteorological Agency

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## Zambia

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**Suman JAIN**  
University of Zambia

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## Looking Ahead

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START is committed to addressing challenges and opportunities associated with building the capacity of developing country individuals and institutions to undertake global change research and to communicate research in ways that support informed decision-making by key stakeholder groups. We believe that strong institutions and skilled individuals are essential to support and sustain the required knowledge systems and to ensure developing country ownership and leadership in programs and activities.

In addition to building on the programs and projects described in the previous sections, START will also introduce new activities in the coming years. Priority areas for action include:

- Expanding engagement with universities in Africa and Asia on climate change research, education and outreach activities that builds on and carries forward ideas and activities developed during the June 2010 *Forum on Climate Change, Education, and Capacity Building* (page 13) and other recent activities;
- Promoting new approaches to research that engage a wide range of academic and non-academic partners in processes of co-learning;
- Expanding the scope and availability of START training opportunities to more

effectively engage scientists and other professionals in the development and application of innovative communication tools, methods and pathways;

- Strengthening the involvement of developing countries in setting and implementing the research agenda for the new ICSU initiative on Earth System Research for Sustainability.

Areas where we see opportunities for such engagement include adaptation and urban development planning, food security in the changing urban-rural continuum, ecosystem services under a changing climate, and human health and well-being.

In addition, START will grow its activities related to the programs on Integrated Research on Disaster Risk, especially in collaboration with the International Centre for Excellence on IRDR recently established in Taipei, and collaborate with the PRO-VIA initiative recently launched by UNEP. START will also broaden the scope of its climate change adaptation fellowship program.

We believe that a well-informed citizenry, responsive institutions and problems-focused knowledge generation are imperative to achieving a sustainable future and are committed to helping make this happen.

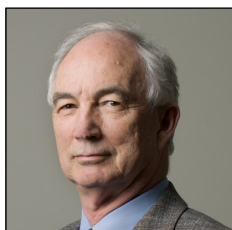
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# START International, Inc.

## Board of Directors

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### Board Members



**Gordon McBean (Chair)**  
*Canada*  
Chair, IRDR  
Scientific Committee  
University of Western Ontario



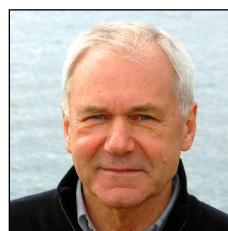
**Roland Fuchs**  
*USA*  
East West Center,  
Former Vice-Rector, United  
Nations University in Japan



**C.H. Liu**  
*Taiwan*  
Vice President,  
Academia Sinica



**Khotso Mokhele**  
*South Africa*  
Chancellor,  
University of the Free State



**Graeme Pearman**  
*Australia*  
Chair of Sustainability Science,  
Monash University

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*Germany*  
Chair, START  
Development Committee  
Center for Development  
Research, University of Bonn



**Anand Patwardhan**  
*India*  
Chair, START Scientific  
Steering Committee  
Indian Institute of Technology



**Hassan Virji**  
*USA*  
Executive Director,  
International START  
Secretariat

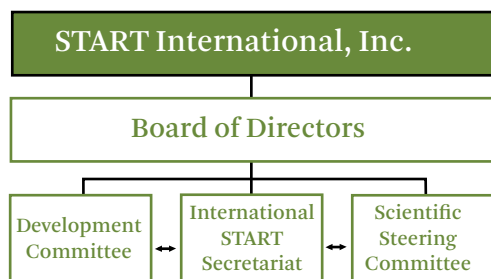


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# START International, Inc.

## Structure

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Operating under the guidance of the Board of Directors, START International, Inc. has two standing committees: the Development Committee and the Scientific Steering Committee. The International START Secretariat is the operating arm of the Board. For more information, please visit <http://start.org/about/committees>

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## Our Partners

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Academia Sinica, Taiwan  
African Academy of Sciences (AAS)  
Asia Pacific Network for Global Change Research (APN)  
Climate Change Adaptation in Africa (CCAA)  
Climate Change, Agriculture and Food Security (CCAFS)  
Climate and Development Knowledge Network (CDKN)  
Earth System Science Partnership (ESSP)  
East-West Center (EWC)  
European Commission (EC)  
German Federal Ministry for Education and Research (BMBF)  
Intergovernmental Panel on Climate Change (IPCC)  
International Center for Theoretical Physics (ICTP)  
International Council for Science (ICSU)  
International Development Research Centre (IDRC)  
ICSU Integrated Research on Disaster Risk (IRDR)  
John D. and Catherine T. MacArthur Foundation  
Manila Observatory  
National Science Council of Taiwan  
Open Society Institute (OSI)  
Swedish Meteorological and Hydrological Institute  
UK Department for International Development (UK DFID)  
United Nations Environment Programme/Global Environment Facility  
United Nations University  
United States Agency for International Development  
United States Global Change Research Program  
United States National Aeronautics and Space Administration  
United States National Science Foundation  
University of Western Ontario, Canada  
World Bank Institute  
World Climate Research Program (WCRP)  
World Meteorological Organization (WMO)  
Major universities in Africa and Asia

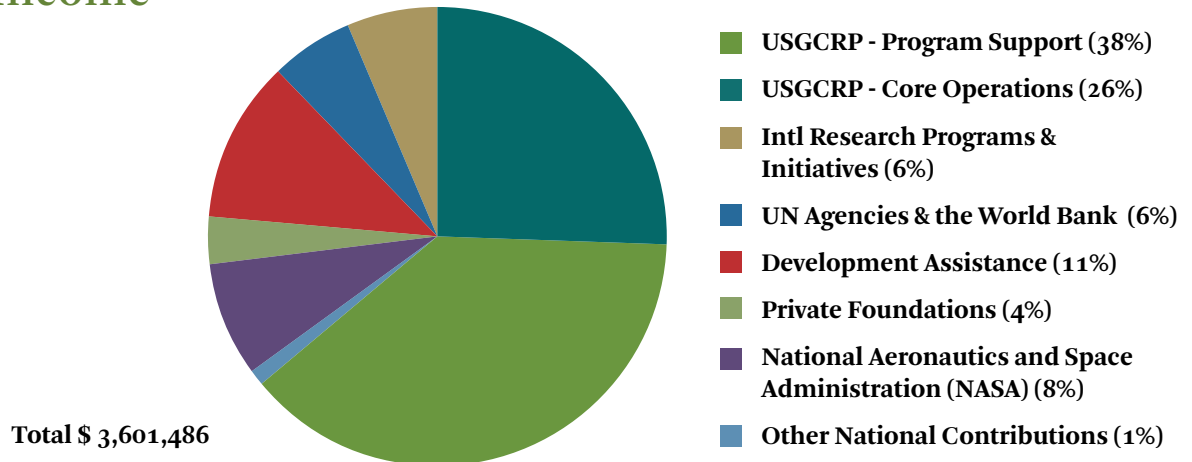
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# 2010 Finances

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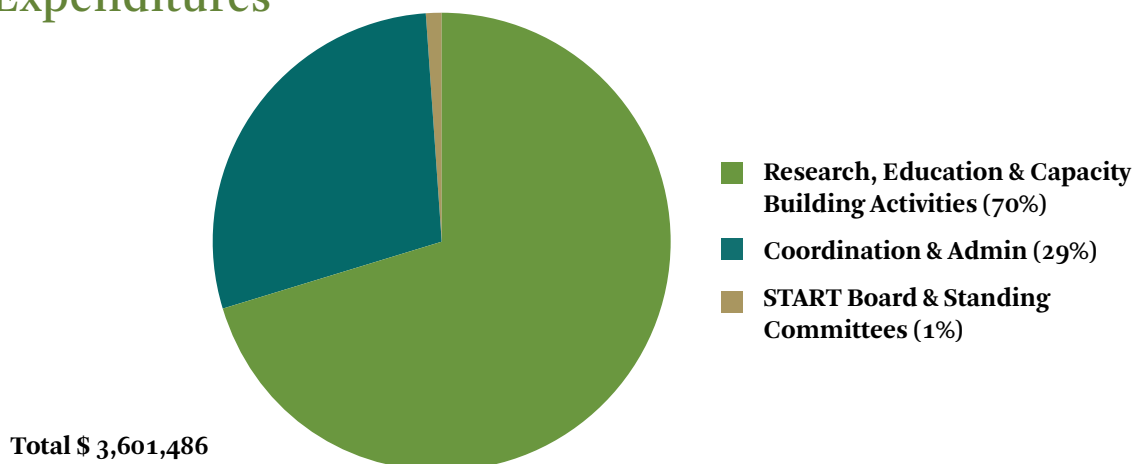
This financial information is specific to the International START Secretariat. START Regional nodes and secretariats are hosted by their respective institutions; their substantial leveraging of programmatic funding for START-related activities in respective regions is not included here.

## Income



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## Expenditures





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global change SysTem for Analysis, Research & Training

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