START's actions and action pledges in support of the NWP Areas of Work

Area 1: **Methods and tools**

NWP Objective: Develop and disseminate methods and tools for impact and vulnerability assessments and for adaptation planning.

START Actions: START is an established leader in developing methods and tools for vulnerability assessment and adaptation planning and in facilitating application and improvement of these methods by developing country organizations and researchers. Recent projects that have made important contributions to methods development include:

AIACC: The Assessments of Impacts and Adaptation to Climate Change project (2001-07) resulted in the development and demonstration of a variety of methods and tools for the assessment of climate change impacts, adaptation and vulnerability. The AIACC project took a 'second generation' approach to climate change assessment that used climate scenarios but that emphasized understanding the environmental, social, economic and institutional factors that shape the vulnerability of a system, place or population that is exposed to climate stresses, the capacity for coping with climate variability and adapting to climate change, and the processes by which adaptation decisions are made. Brief descriptions of some of the methods can be found in the UNFCCC compendium of methods and tools for assessment. Further information about the project can be found at: www.aiaccproject.org.

ACCCA: The ACCCA project (a partnership of UNITAR, START, SEI, ENDA, and others) developed and tested different methods and tools for communicating climate risk information to at-risk populations and decision-makers. These included training workshops multiply targeted at community representatives, professionals, and national agency representatives, participatory monitoring and evaluation, focus group discussions and participatory workshops, dramas presented to at-risk communities, folk music, radio bulletins, videos, posters and leaflets. Further information about the risk communication tools can be found at: http://www.start.org/Programs/accca.html.

Building African Capacity for Conserving Biodiversity in a Changing Climate: This capacity building project developed targeted course modules that trained conservation professionals in methods and tools for assessing risks to biodiversity from a changing climate, examining impacts on the flow of critical ecosystem goods and services and developing strategies to adapt place-based conservation to address such risks. The focus of the project was on biodiversity in the Albertine Rift countries of Burundi, Democratic Republic of Congo, Rwanda, Tanzania and Uganda. The courses will soon be available online as distance learning modules that can serve the broad community of practitioners, policy-makers, educators and other stakeholders engaged in the area of ecosystems and biodiversity conservation. Further information about the project can be found at: http://www.start.org/Programs/Biodiv.html

START pledges new actions to:

- Better document and disseminate information about methods and tools for vulnerability and adaptation assessment from the AIACC, ACCCA, and biodiversity conservation projects; and

- Seek opportunities and partnerships to build capacity for the use of vulnerability and adaptation assessment methods and tools through new education programs, advanced study institutes, fellowships and small grants.

Area 2: **Data and observations**

NWP Objective: Improve collection, management, exchange, access to and use of observational data and other relevant information on current and historical climate variability and change.

START Actions: START supports a number of activities to improve access to and use of observational climate and other data. These include:
The Miombo Network, established with assistance from START, IGBP and LUCC, provides remote sensing and other environmental data related to land use and land cover change for the Miombo region. The network has activities in Malawi, Mozambique, Zambia, Zimbabwe, Tanzania and South Africa. The data is distributed on CD-ROM and is available on-line. For more information, see www.geog.psu.edu/geclab/miombo/.

GOFC/GOLD: START works with the US National Aeronautics and Space Administration (NASA) to facilitate the participation of developing country scientists in the Global Observation of Forest and Land Cover Dynamics (GOFC/GOLD) project (www.start.org/Programs/GOFC.html).

DIVA: Starting in 2009, START in collaboration with other partners is sponsoring the Africa DIVA (Dynamic Impacts, Vulnerability and Adaptation) Project, an online collaborative platform for scientists and policymakers. In addition to compiling and synthesizing scientific assessments of climate change impacts, vulnerability and adaptation for Africa, DIVA will provide access to raw data and models for both national and regional scales, and allow scientists to contribute their own findings.

The Temperate East Asia START Regional Center (TEA-START), hosted by the Institute for Atmospheric Physics of the Chinese Academy of Sciences, maintains climatological data for the monsoon Asia region in support of the Monsoon Asia Integrated Regional Study (MAIRS), ACCCA and other projects (www.tea.ac.cn/english/index.asp).

The Climate System Analysis Group (CSAG) of the University of Cape Town, a research node in the START network, received support under the AIACC project to develop a database of long-term weather observations for stations across sub-Saharan Africa. The database was recently used by other stakeholder groups for planning adaptation, such as those actions facilitated under the ACCCA project.

START pledges new actions to:
- Seek support for and otherwise assist START research centers to expand efforts to identify and collect long-term observation data for additional weather stations in Africa, in Asia, and Oceania obtain permission from relevant authorities to integrate the data in its data archive, provide access to the data, develop tools for analysis of the data, and deliver training for use of the tools.

Area 3: **Climate modeling, scenarios and downscaling**

NWP Objective: Promote development of, access to, and use of information and data on projected climate change.

START Actions: START continues to support a number of activities that enhance the capacity of developing countries to improve access to and use of information and data on projected climate change. These include:

Through the Integrating Climate Change Mitigation and Adaptation into Development Planning project START, UNEP, and the IPCC will support the training of regional scientists in West and East Africa and South Asia on the use and interpretation of climate model outputs for regional scenarios and the construction of 'envelopes' of potential changes in future climate that reflect uncertainties. The training will be carried out by the Bangladesh Centre for Advanced Studies, the University of Dar es Salaam, and the University of Ghana, in their respective regions.

START provides small research grants and doctoral fellowships to individuals from Africa who participate in the African Monsoon Multidisciplinary Analysis (AMMA) project. The project seeks to improve knowledge and understanding of the West African monsoon for prediction and decision-making.

TEA-START, a center of regional climate modeling expertise, led the Regional Model Intercomparison Project to evaluate and improve regional modeling of monsoon climate in Asia and is now providing support for climate change scenarios for the MAIRS and ACCCA projects.

CSAG, the leading regional climate modeling center in Africa, received support under the AIACC project to develop and disseminate climate change projections for sub-Saharan Africa and to assist other researchers in Africa to use and interpret climate change projections. A partner in the ACCCA project, CSAG is developing a tool for constructing envelopes of future climate exposures using statistical downscaling techniques; is making the tool available to others and providing technical support for its use.

The Laboratory for Atmospheric Physics at Cheik Anta Diop University in Senegal received support through the AIACC project to improve their capabilities for regional climate modeling of West Africa.

START facilitated the nomination and selection of several developing country members of the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) and has collaborated with TGICA to support expert meetings and other activities (see http://ipcc-wg1.ucar.edu/wg1/wg1_tgica.html).

START pledges new actions to:

- Enhance the potential of START's African Climate Change Fellowship Programme (see Area 6) and activities of the Temperate East Asia and Southeast Asia START centres to promote capacity building for the generation, interpretation, and utilization of climate modeling, scenarios and downscaling across Africa and Asia.
- Work with IPCC-TGICA to identify and promote regional mechanisms for building institutional capacity for providing access to climate data and projections and assisting users to interpret and apply climate data and projections.

Area 4: **Climate related risks and extreme events**

NWP Objective: Promote understanding of impacts of and vulnerability to current and future climate variability and extreme events, and the implications for sustainable development.

START Actions: START promotes awareness raising and understanding of current and future climate risks through its support for education and capacity building, and risk communication and assessment. Relevant activities include:

Cities at Risk: A START-implemented workshop 'Cities at Risk' was held in February 2009 in Bangkok, Thailand to examine scientific findings and projections regarding climate-related risks (e.g., sea level rise, extreme climate events, intensification of storms and storm surges) for Asia's coastal megacities. The Cities at Risk workshop is an initial step in what is intended to be a longer-term set of activities by START for developing adaptive capacities and integrating science and policy in managing climate risks in Asia's coastal megacites.

AIACC: The AIACC project made substantial advances in the understanding of impacts of and vulnerabilities to climate change, climate variability and extreme events. All 24 of the AIACC assessments examined climate related risks, including extremes, to promote better understanding of the risks and adaptation options. Flood risks were examined for urban dwellers of Buenos Aires, rice farmers in the lower Mekong River basin, townships of Fiji, and economies of Central America. Drought risks were assessed for subsistence farmers in Botswana, Nigeria and Sudan. Risks to human health related to climate variability and change were investigated for the Caribbean and Lake Victoria region of East Africa. Current practices for coping and managing climate risks were examined and lessons derived for enabling adaptation to future climate change. Traditional knowledge was an important factor in several of the assessments (e.g. Botswana, Sudan and Nigeria). A synthesis of findings from the AIACC project about vulnerability to climate risks is provided by For Whom the Bell Tolls, Vulnerabilities in a Changing Climate, (see www.aiaccproject.org/working_papers/working_papers.html, AIACC Working Paper No. 21).

Building African Capacity for Conserving Biodiversity in a Changing Climate: The MacArthur Foundation funded capacity building program trained early- to mid-career conservation professionals from the Albertine Rift countries of Burundi, Democratic Republic of Congo, Rwanda, Tanzania and Uganda in developing an understanding of changing risks to biodiversity from climate change. The program curriculum recognized that current conservation strategies designed under a relatively static climate may not offer adequate protection to biodiversity and ecosystems as they respond to a changing climatic regime. This knowledge was communicated to participants via instruction in theory (program Course 1) and their engagement in case study exercises, field visits and field-based, guided externships. Further information about the program is available at: http://www.start.org/Programs/Biodiv.html.

ACCCA: The recently-completed ACCCA project investigated appropriate methods for climate risk communication across a wide variety of decision-making contexts in Africa and Asia, including community-led adaptation for sustainable livelihoods in coastal south-western Nigeria, water management in Mali, strengthening community management of malaria risk in a changing climate, improving the resilience of subsistence farming in Malawi, adapting fisheries management in Lake Victoria, reducing risks from weather related disasters in Nepal, improving rangeland management and institutions in Mongolia, and integrating development and adaptation policies in India.

START pledges new actions to:

- Make widely available lessons from AIACC, ACCCA, Cities at Risk and other START projects about climate related risks through new publications and the weADAPT platform (www.weADAPT.org);
- Work with the IPCC to plan and develop donor support for a successor to the AIACC project that will build on the achievements of AIACC to address remaining knowledge gaps and target Least Developed Countries for scientific and technical capacity building.

Area 5: **Socio-economic information**

NWP Objective: Improve knowledge of the socio-economic aspects of climate change and promote the integration of socio-economic information into impact and vulnerability assessments.

START Actions:
Financial flows assessment: The Pan-African START Secretariat (PASS) is providing technical backstopping for a UNDP-led assessment of investment and financial flows to address climate change in developing countries. PASS is working with country teams in Algeria, Gambia, Namibia, Niger, Liberia, and Togo, and the assessments target the following sectors: health, water resources, forests, energy, agriculture, and/or land-use. PASS and its colleagues will provide training for key national stakeholders in the use of a new UNDP User Guidebook for conducing financial flows assessments.

The AIACC project pioneered the use and integration of socio-economic information in assessments of impacts and vulnerability and demonstrated that social, economic, institutional and governance processes strongly shape the character and degree of vulnerability to climate hazards. Similar methods are being applied in the ACCCA project. The MAIRS project is emphasizing the development and use of socio-economic scenarios to analyze the driving forces of environmental change in Asia.

START pledges new actions to:

- Seek support for and assist START research centers to expand efforts to build upon and consolidate gains made during the AIACC.

Area 6: **Adaptation planning and practices**

NWP Objective: Collect, analyze, and disseminate information on past and current practical adaptation actions and measures, including projects, short and long-term strategies, and local and indigenous knowledge.

START Actions: START continues to support a number of activities that enhance the process of generating and disseminating information and knowledge on adaptation. Relevant activities include:

ACCFP: The African Climate Change Fellowship Program (ACCFP) offers fellowship opportunities to African professionals, researchers and graduate students to enhance their capabilities to advance and apply knowledge for climate change adaptation. The grants enable participants to undertake experiential learning, education, research and training in Policy, Post-Doctoral, Doctoral or Teaching Fellowships. The Fellows visit other institutions – Host Institutions – to implement a project of their own design that enhances their understanding of climate risks, vulnerabilities and adaptation strategies, assesses current practices for designing and implementing adaptation projects and/or promotes integration of adaptation with planning, policy and decision-making. START collaborates with the Institute of Resource Assessment at the University of Dar Es Salaam and the African Academy of Science to manage the ACCFP. The project is funded under the IDRC/DFID CCAA programme (See http://www.start.org/Programs/AfricanCCFP.html for more information.)

CCCP: The Climate Change Challenges Program (CCCP) is a long-term commitment by the CGIAR and partners within the Earth System Science Partnership to address the pressing and complex issues of food production and food security under a changing climate. START and the CCCP are exploring opportunities for START to engage in capacity building in support of the CCCP research themes of diagnosing vulnerability and analyzing opportunities, unlocking the potential of macro-level policies, enhancing decision-making, adaptation pathways for managing current climate risks and under progressive climate change, and poverty alleviation through

climate change mitigation. START will do this through such activities as offering advanced institutes and developing university curricula on agriculture and climate change, promoting science-policy dialogues on key food production and security issues, utilizing risk communication methods and tools developed through the ACCCA project, and mobilizing the network of START scientists who work in the CCCP's target regions of West and East Africa and South Asia.

Science-policy dialogues: Climate change science-policy dialogues will be conducted in 2009-10 under the Integrating Climate Change Mitigation and Adaptation into Development Planning project. The national dialogues will take place in Ghana, Nigeria, Senegal, Tanzania, Rwanda, Burundi, Nepal, Bhutan, and Bangladesh, with the objective of broadening support for the integration of climate change mitigation and adaptation knowledge into national strategies for sustainable development and poverty reduction. The dialogues are intended to inject the best available scientific knowledge from the IPCC Climate Change 2007 report and other sources into policy processes and decision-making in the targeted countries, and to engage the science and policy communities of the targeted regions to develop a shared vision of research and assessment needed to serve climate change decision-making needs.

Building Long Term Capacity for Managing and Adapting to Climate Change in Africa and Asia: START, together with SEI, recently implemented the first phase of a SIDA-funded program. The program aims to enhance capacity in least developed countries across Africa, South and Southeast Asia to better understand and manage risks associated with global change, particularly climate change and variability. The first phase of the program assessed targeted countries' current education and training capacities for improving research and understanding of vulnerability, adaptation and resilience to climate risks and relevant capacity building priorities. During its next phase, the program plans to convene and enhance the capacity of national level interdisciplinary resource groups that include representatives from universities, scientific research institutes, government, industry, NGOs, and others. Future activities also include regional workshop and training seminars, development of curricula and training materials, and support for traveling faculty and research fellowships.

Adaptation was also a major focus of the AIACC project and practices and recommendations for adaptation planning are synthesized in 'A Stitch in Time, Lessons for Climate Change Adaptation from the AIACC Project' (available at http://www.aiaccproject.org/working_papers/working_papers.html). More detailed analysis can be found in *Climate Change and Adaptation* (2008; from Earthscan). Many of the institutions, investigators and stakeholders that participated in the AIACC project are working together to apply some of the lessons in planning and promoting adaptation actions.

START pledges new actions to:

- Join as partner of weADAPT and contribute information about methods, tools, experiences and lessons to the knowledge base; weADAPT is a new web-based platform being developed by the Stockholm Environment Institute and others to enhance the knowledge base of the adaptation community (see www.weADAPT.org);
- Explore opportunities to expand opportunities for education on global environmental change, including through the African Climate Change Fellowship Program; and
- Reinforce capacity building and outreach activities with key policy and decision-making communities through additional actions.

Area 7: **Research**

NWP Objective: Promote research on adaptation options.

START Actions: START will continue to promote and enable global environmental change research in the developing world through its networks of regional science committees, research

centers, research nodes, and secretariats in Africa, Asia and Oceania. START activities engage more than 1000 developing country scientists annually in climate change and other global change research through major multi-institutional research initiatives; advanced study institutes and training workshops; small research grants; doctoral fellowships; awards to young scientists, visiting scientists and senior scientists; and scientific conferences and workshops.

In START's first decade, our research emphasized physical and biological aspects of climate change and other global environmental changes to improve understanding of their causes and consequences. In our second decade, social sciences and the integration of social and natural sciences have figured more prominently in START research as we have sought to support decisions for adapting to climate change and global environmental change, building resilience and enabling sustainable development. Additionally, START is increasingly promoting enhanced communication between scientific and decision-making communities. START's Advanced Study Institutes provide an example of recent or on-going support for research on such topics as:

- Global environmental change and the vulnerability of water resources in the context of Millennium Development Goals in Africa
- Monsoon prediction and predictability in support of the Monsoon Asia Integrated Regional Study
- Vulnerability to Global Environmental Change, with the International Institute for Applied Systems Analysis (IIASA) and the International Human Dimensions Program (IHDP)
- Climate Variability and Food Security, with the International Research Institute for Climate and Society, Columbia University (IRI)

START pledges new actions to:

- Continue and expand START research activities that are designed to support decision-making about climate change adaptation, environmental risk management and integration of environmental risk management with sustainable development; and
- Strategically plan future education, fellowship and capacity building programs to develop the next generation of vulnerability and adaptation researchers.

Area 8: **Technologies for adaptation**

NWP Objective: Promote development and diffusion of technologies, know-how, and practices for adaptation; address identified adaptation priorities; and build on lessons learned from current adaptation projects and strategies.

START Actions: START's actions to support the other eight areas of work – methods and tools ◆ data and observations ◆ climate modeling, scenarios and downscaling ◆ climate related risks and extreme events ◆ socioeconomic information ◆ adaptation planning and practices ◆ research ◆ economic diversification – are contributing to the development and diffusion of technologies, know-how and practices for adaptation. These are exemplified by the achievements obtained through the AIACC, ACCCA, Biodiversity Conservation Under a Changing Climate, Cities at Risk Programme, Integrating Climate Change Adaptation and Mitigation Knowledge in Development Planning, and the African Climate Change Fellowship Programme.

START pledges new actions to:

- Review future research and capacity building programs to assure that they allocate human and other resources to the development of technologies, know-how and practices for adaptation, and to their dissemination to relevant stakeholders.

Area 9: **Economic diversification**

NWP Objective: Promote understanding and the development and dissemination of ways to increase economic resilience and decrease reliance on vulnerable economic sectors.

START Actions: Diversification of livelihoods and economic activities emerged from the AIACC project as a key strategy for building resilience and reducing risks where economies are highly dependent on climate sensitive natural resources. Diversification strategies for managing current climate risks are in use in settings as varied as subsistence agricultural communities in northern Nigeria, Sudan, Mexico, Lao PDR, and the Philippines; smallholder commercial farms in Argentina, Mexico, and Thailand; and pastoral systems in Mongolia. Recommendations from these and other studies urge further economic diversification as important for future adaptation to climate change. However, there are signification constraints on diversification that are identified in several AIACC studies. Success will require integration of development strategies with adaptation planning. Findings related to economic diversification are included in AIACC Working Paper No. 48, 'A Stitch in Time, Lessons for Climate Change Adaptation from the AIACC Project.'

START pledges new actions to:

- Develop research activities to explore the barriers to economic diversification as an adaptation strategy and strategies that have proven effective in diversifying economic activities.