FINAL TECHNICAL REPORT

Project Title:	**Science and Technology for Africa's Development: Building a Regional Platform for Political Engagement and Strategic Action**
Grant Number:	**Grant # 102135**
Name of Institution:	**New Partnership for Africa's Development (NEPAD) South Africa**
Project Coordinator:	**Dr. John Mugabe**
Submission Date:	**April 25, 2006**

1. SYNTHESIS

The project entitled "Science and Technology for Africa's Development: Building a Regional Platform for Political Engagement and Strategic Action" was designed and implemented by the New Partnership for Africa's Development (NEPAD) to enable African countries to build a strong political constituency and comprehensive strategic plan for the promotion of science and technology for development. Its main focus was to conduct studies to inform African policy-makers and political leaders in developing a common African plan for science, technology and innovation. The project was erected on the premise that to ensure that science, technology and innovation are drivers of sustainable development and the attainment of the MDGs as well as other NEPAD objectives, there is need to solicit and build political leadership for science, technology, and innovation in Africa.

To realize the objectives of the project, NEPAD's Office of Science and Technology commissioned studies, organized experts' workshops, established specialized advisory panels and working groups, developed a website www.nepadst.org , organized workshops in each of the regional economic communities of Africa, organized two conferences of ministers, and engaged many international partners on specific science, technology and innovation agendas.

The main outputs of these efforts and the project as a whole include the establishment a high-level policy and political forum: the African Ministerial Council on Science and Technology (AMCOST) and its subsidiary bodies; the finalization and adoption of Africa's Science and Technology Consolidated Plan of Action (CPA); increasing efforts by African governments to develop national strategies and action plans for science and technology; emerging efforts by Regional Economic Communities (RECs) to integrate science, technology, and innovation considerations into their programmes; financial resources being leveraged and allocated to specific projects and networks of centres of excellence; and the African Union (AU) Commission giving high priority to science and technology and making the 2007 AU Summit to focus on promoting the implementation of the CPA.

On the whole, the project has stimulated growing African political interest in and support for science, technology and innovation. It has enabled NEPAD and the AU Commission to start mobilizing expertise and leadership to focus on shared or common challenges of fostering science, technology, and innovation for African development.

2. PROJECT RATIONALE AND OBJECTIVES

The World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa in 2002 stressed the importance of science, technology, and innovation in enabling developing countries particularly those of Africa to fight poverty, combat diseases, eradicate extreme hunger, improve water quality and sanitation, stem environmental degradation, and participate in the global economy. Many of WSSD's recommendations are about mobilizing and directing science and technology for human development. The WSSD Plan of Implementation calls on the international community to "[p]romote technology development, transfer and diffusion to Africa and further develop technology and knowledge available in African centres of excellence; and [s]upport African countries to develop effective science and technology institutions and research activities capable of developing and adapting to world class technologies".

At the regional level, there are several policy and political pronouncements on science and technology. For example, Articles 103, 104 and 127 of the Treaty establishing the Common Market for Eastern and Southern Africa (COMESA) are dedicated to issues of cooperation in the development of science and technology. Article 21 of the Southern Africa Development Community (SADC) Treaty recognises the importance of cooperation in areas of science and technology. SADC has also adopted a protocol with provisions aimed at promoting science and technology cooperation. The East African Community (EAC) Treaty devotes its Article 103 to issues of cooperation in science and technology. Similar provisions are found the treaty of the Economic Commission of West African States (ECOWAS) and the Constitution of the AU.

The greatest challenge facing African countries now is how to translate the statements of intent and political recognition of the roles of science and technology into concrete activities, programmes and processes. Meeting this challenge requires policy guidance and the support of high-level political institutions. It demands that countries create platforms for political engagement and the formulation as well as implementation strategic actions. NEPAD provides a good foundation for regional cooperation in science, technology, and innovation. It is a framework that should be used to establish the necessary conditions for Africa's scientific and technological development.

NEPAD recognizes that science, technology and innovation are central to its goals of promoting economic recovery, poverty reduction, better human health, good governance and environmental sustainability in Africa. One of its overall objectives is to bridge the technological divide between Africa and the rest of the world. It calls for the formulation and implementation of measures to: "promote cross-border co-operation and connectivity by utilizing knowledge

currently available in existing centers of excellence in the continent"; and "generate a critical mass of technology expertise in targeted areas that offer high growth potential, especially in biotechnology and geo-science."

To explore ways of translating these goals into concrete actions, NEPAD Secretariat in collaboration with the Department of Science and Technology (DST) of the Republic of South Africa organized a regional workshop on "Developing a Shared Platform for Science and Technology". The workshop was held February 17-19, 2003 in Johannesburg, South Africa and attended by more than 50 representatives of governments, regional and sub-regional economic integration bodies, the European Commission, IDRC, United Nations agencies, and the scientific community.

The workshop's specific objectives were to:

(a) discuss factors that impinge on national and regional efforts to advance scientific and technological development;
(b) identify specific priority areas and issues that NEPAD's science and technology programme should focus on; and
(c) identify and recommend appropriate institutional arrangements to formulate and adopt an African strategic framework and action plan on science and technology.

The workshop identified the following critical factors that currently constrain or undermine efforts to build and/or strengthen Africa's scientific and technological development. *First*, in most countries of the region there are weak links between the scientific enterprise and political institutions. Political parties in the region have not accorded science and technology much attention in their manifestos and parliamentary activities. Technological change is a complex process that is influenced by many political factors. To engage in and manage this process, countries require the support of high-level political institutions. These institutions often determine the nature and levels of resources that get allocated to public research and development activities and the overall governance of science, technology, and innovation. The workshop recommended that efforts be made to build strong political constituencies for science and technology in Africa.

In June 2003 NEPAD Secretariat submitted to IDRC a proposal entitled 'Science and Technology for Africa's Development: Building a Regional Platform for Political Engagement and Strategic Action' seeking a grant of approximately US$ 550,000 to:

(a) build a strong constituency of African politicians to promote science and technology;

(b) build the continent's confidence and capacity to engage in review, formulation and implementation of good science, technology and innovation policies;
(c) build a better understanding of what formal knowledge-based networks and centres of excellence exist in Africa and design specific policies and procedures to enable African countries to effectively and efficiently use such networks and centres to achieve sustainable development goals;
(d) promote regional cooperation in science and technology policy formulation and implementation;
(e) promote exchange of information and experiences on how best to stimulate and sustain scientific and technological development; and
(f) provide to NEPAD strategic advice on ways and means of strengthening Africa's scientific and technological development.

In November 2003 IDRC provided to NEPAD Secretariat the grant (approximately US$ 550,000) for a two years' project to achieve the objectives outlined above.

3. FULFILLMENT OF PROJECT OBJECTIVES

The project has fulfilled most of the objectives set. The following is a description of how each objective has been attained and any modifications made during the implementation of the project.

3.1 Objective 1: *to build a strong constituency of African politicians to promote science and technology*—one of the main outputs of the project is the establishment of the African Ministerial Council on Science and Technology (AMCOST). (AMCOST) was established in 2003 as a high-level platform for African ministers to develop common science, technology and innovation policies, strategies and programmes. It has held two conferences and made specific policy decisions to promote science, technology and innovation in Africa. Two AMCOST subsidiary bodies (a) Bureau of Ministers and (b) Steering Committee comprising of Permanent Secretaries (PSs) have been created and are actively engaged in promoting regional and continental science and technology programmes. AMCOST and its subsidiary bodies are now officially recognized as institutions of the African Union (AU). The AU Commission is now a co-convener of meetings and/or conferences of AMCOST. AU Summit in January 2007 will have science, technology and innovation as its theme. This is a major achievement. It is unprecedented to have African

presidents dedicate the summit to discussing the role of science and technology as well as considering specific policy issues recommended by AMCOST.

3.2 Objective 2: *build the continent's confidence and capacity to engage in review, formulation and implementation of good science, technology and innovation policies*—as a result of the project there is a growing number of African governments that are reviewing or planning to review their national science, technology and innovation systems, strategies and policies. The first conference of AMCOST called upon African countries to conduct reviews of their policies and related strategies. Many countries have plans to conduct such reviews and some have already launched formal processes. Botswana, Mozambique, Rwanda, Nigeria and Uganda have ongoing processes to develop new science, technology and innovation policies. Angola has requested NEPAD Office of Science and Technology and the United Nations Conference on Trade and Development (UNCTAD) for support to review its science and technology system. The SADC group of countries recently adopted resolutions to work together through sharing of experiences and expertise to review and/or develop national science, technology and innovation strategies and policies.

3.3 Objective 3: *build a better understanding of what formal knowledge-based networks and centres of excellence exist in Africa and design specific policies and procedures to enable African countries to effectively and efficiently use such networks and centres to achieve sustainable development goals*—one of the core sets of issues that NEPAD is engaged with relates to ways and means to establish centers of excellence in science and technology. The first conference of AMCOST decided that NEPAD flagship programmes should be implemented by carefully identified and designated networks of centers of excellence. NEPAD Office of Science and Technology prepared a background paper suggesting a conceptual framework and criteria for identifying and establishing centers of excellence in science and technology. The paper is being used by AU Commission to develop specific criteria for establishing centers of excellence. NEPAD is also being guided by the paper to establish networks of centers dedicated to biosciences, water sciences and other areas.

One network—the NEPAD Biosciences Network—is already operational with four hubs on the continent. The Canadian International Development Agency (CIDA) has committed CAD 30 million as seed funding for the network. Detailed business plans have been developed for each of the hubs. NEPAD Office of Science and Technology has recruited a full-time Coordinator and started leveraging additional resources for this network.

A network of centers dedicated to water sciences and technology development is being established under the auspices of NEPAD and the Africa Union (AU). An experts' task team was established in 2005 to develop specific guidelines for identifying centers that would be networked. Its proposals will be considered by an inter-ministerial dialogue between AMCOST and the African Ministers' Council on Water (AMCOW) in July 2006. The Government of France through the Institute of Research for Development (IRD) has provided approximately Euro 200,000 to support this initiative.

3.4 Objective 4: *promote regional cooperation in science and technology policy formulation and implementation*—in addition to the establishment of AMCOST, the project has been instrumental in promoting science and technology cooperation within Regional Economic Communities (RECs). NEPAD Office of Science and Technology supported AMCOST members to organize regional workshops to develop specific projects and related policy measures. In the areas of life sciences (biosciences), laser technologies, mathematical sciences, and science, technology and innovation indicators, there are increasing multi-country projects developed with NEPAD's support.

It is largely as a result of this project that the AU Commission is now working with NEPAD Office of Science and Technology to develop a protocol for regional science and technology cooperation. The Economic Commission for West African States (ECOWAS) developed in 2004 its framework on NEPAD science and technology. This is aimed at promoting cooperation among the ECOWAS member states to collectively implement NEPAD/AU science and technology programmes and projects. SADC countries have held two ministerial meetings and make specific decisions to promote the implementation of the CPA. They will be establishing a desk in the SADC Secretariat to oversee the implementation of the CPA in the region. NEPAD Office of Science and Technology is encouraging other regions to start similar initiatives.

3.5 Objective 5: *promote exchange of information and experiences on how best to stimulate and sustain scientific and technological development*—In addition to the creation of AMCOST, the project has opened a range of other avenues and created mechanisms for exchange information and experiences. The regional groupings under AMCOST are becoming platforms for sharing information and experiences, as well as strengthening related institutional arrangements. NEPAD Office of Science and Technology is now establishing an Africa e-library of science, technology and innovation policy that will be a depository of information on various issues including national

activities, processes and policies. Resources Africa (SA) is supporting NEPAD to establish the library. The extent to which the project has contributed to exchange of information and experiences can be assessed in terms of the increasing bilateral science and technology initiatives that explicitly invoke NEPAD's efforts. SADC, ECOWAS, and some of the countries such as Mozambique have made references to the role that NEPAD has and is playing to promote exchange of information. The NEPAD Office of Science and Technology website www.nepadst.org is increasingly being used to access information on science, technology and innovation activities.

3.6 Objective 6*: provide to NEPAD strategic advice on ways and means of strengthening Africa's scientific and technological development*—as a result of this project a science and technology advisory mechanism has been established in the NEPAD set-up. In addition to commissioning studies on various science and technology issues, specialized panels or working groups of experts have been created for biotechnology, and science, technology and innovation indicators. A High-level African Panel on Modern Biotechnology (APB) was established in 2005 to provide African Heads of State and Government strategic advice on scientific, ethical and policy issues pertaining to modern biotechnology. The APB will present its first report to the AU Summit in January 2007.

Another advisory body established by NEPAD is the African Science, Technology and Innovation Indicators (ASTII) Working Group. The Group has developed specific proposals and recommendations that were considered by the second conference of AMCOST in September 2005. A comprehensive proposal on institutionalizing the ASTII is being finalized by the AU Commission and NEPAD with input from the Group.

3.7 *Overall output*—the project has enabled NEPAD and the African Union (AU) to design and adopt 'Africa's Science and Technology Consolidated Plan of Action', the CPA. The CPA is being endorsed by an increasing number of international partners, including the World Bank, as a framework for promoting science, technology and innovation in Africa. Recent World Bank documents on science, technology and innovation make explicit reference to the CPA. It is being domesticated by RECs and national governments.

4. Project design and implementation

The project's objectives were fulfilled through the implementation of the following interrelated activities:

4.1 Research and information gathering

During initiation of the project it was recognized that the development of a continental science and technology strategy and action plan is a knowledge and information intensive process. Data and information on various aspects of African development, policy-making, and science and technology were required to develop the strategy and action plan. In this respect, the project commissioned a number of studies or background papers. The following is a list of commissioned studies or background material under the project.

1. *Comprehensive questionnaire* was developed with technical assistance of a Canadian expert Dr. Jim Mullin and used collect and collate data and information on national as well as regional capacities and priorities in science and technology. The questionnaire was used to identify R&D strategies, funding mechanisms and institutional actors. It was also used to gather data on status of laboratories and technology institutes. Generally, the response rate was low. Few institutions were able to respond before the deadline. The questionnaire is still being used to prepare profiles of R&D institutions and strategies of countries.

2. *Intellectual Property Protection*—the first meeting of the Science and Technology Steering Committee[1] held 26-27 January 2004 in Pretoria, South Africa decided that the NEPAD Office of Science and Technology should commission or prepare a background paper on status of and institutions for intellectual property protection in Africa. Two consultants were commissioned to prepare a background paper that covered historical evolution of and rationale for intellectual property protection, the kinds of regional institutional arrangements that have been designed by the European Union and the OECD countries to harmonize intellectual property protection laws, as well as to ensure that such laws promote economic growth and sustainable development, the available evidence on the impact of intellectual property protection on African countries; and nature of regional institutional arrangements for protection of intellectual property in Africa and benefits that would accrue by creating a common African organization and harmonized laws. It

[1] This Committee was established by the first African Ministerial Conference on Science and Technology in November 2003. A description of the Conference and its outcomes is provided in sections below.

suggested issues of institutional building, harmonization of laws, and strengthening of Africa's capacity.

3. *Science, technology and innovation indicators*—one of the priorities agreed upon at the first workshop in February 2003 was the need for African countries to develop and use common benchmarks or indicators to survey science, technology and innovation activities. Developing and adopting science, technology and innovation indicators require information and capacity. Information is required to enable policy-makers to decide on which kinds of indicators to adopt and use. It is also crucial to provide policy-makers with information on experiences of other regions in developing and using science, technology and innovation indicators. Two background studies were commissioned. The first focused on designing innovation surveys for African countries while the second on the nature and use of science and technology indicators. [2] The two papers were used by the African Experts' Working Group on Science, Technology and Innovation Indicators. In addition a Canadian expert in indicators, Dr. Fred Gullet, was commissioned to prepare a study on how African countries can develop common indicators.

4. *Science parks and innovation hubs*—In order to build a good understanding of links between private sector and public research activities, it was recognized that there is a need to conduct a survey of innovation hubs and science parks in Africa. NEPAD Office of Science and Technology commissioned the African Technology Policy Studies Network (ATPS) to conduct a survey that covered the following aspects: (a) definitions of innovation hub, science park and technology incubators, (b) identification of innovation hubs and science parks in Africa, and (c) analysis of national policies and laws that African countries are using to promote the establishment of innovation hubs and science parks. It also suggested components of a programme of work that was considered by AMCOST Steering Committee and incorporated into the CPA.

5. *Public expenditure on R&D*—one of the main preconditions for the successful development and implementation of an African science and technology strategy and plan of action is the availability of financial resources for R&D. African governments have severally committed themselves to increasing their public expenditure on R&D to at least 1% of their countries' Gross Domestic Product (GDP). The February 2003 workshop and subsequent workshops emphasized the importance of monitoring whether the countries are making efforts to meet the target. NEPAD Office of Science and Technology commissioned the African Economic

[2] The first study on surveying African innovation systems was prepared by the United Nations Institute for New Technologies (UNU-INTECH) under the leadership of Prof. Lynn Mytelka. The second was prepared by Prof. A. Pouris, University of Pretoria.

Research Consortium (AERC) to prepare a study that identified levels of public expenditure and various instruments being used by countries. The survey formed the basis for AMCOST decision to explore possibility of establishing the proposed African Science and Innovation Facility (ASIF).

6. *Gender, science and technology in Africa*—in order to ensure that NEPAD's science and technology programmes add value to existing national and regional programmes for improving the status of women in science and technology, a survey of initiatives or programmes was commissioned. An initial report was submitted to the Steering Committee in August 2005. The report provides a profile of programmes for women in science and technology. It is being updated to be submitted to the AU Commission to be used for the preparation of a comprehensive project that will be dedicated to promoting women's enrollment in science and engineering courses in tertiary education in Africa.

7. *Conceptual framework and guidelines for establishing networks of centers of excellence*—the establishment of networks of centers of excellence is one of the priorities of NEPAD. African leaders explicitly recognized that new institutional arrangements are needed to harness, generate and apply scientific knowledge and technologies to achieve economic change and sustainable development. They have made a wide range of decisions regarding the establishment of centers of excellence. For example, the first African Ministerial Conference on Science and Technology held in November 2003 instructed NEPAD Secretariat to prepare guidelines for establishing networks of centers of excellence. The following activities or actions have been taken to promote the establishment of centers of excellence:

(a) a background study entitled "Centers of Excellence in Science and Technology for Africa's Sustainable Development: Towards New Forms of Regional and Sub-Regional Networks' was prepared and made available to African governments. The study's recommendations have been considered and largely adopted by AMCOST. They are used in the development of networks of centers of excellence dedicated to water sciences, biosciences and material sciences.
(b) Profiles of R&D institutions in flagship programme areas, particularly biosciences and water sciences, have been prepared. In the case of biosciences hubs and nodes have been designated and specific R&D as well as capacity building activities launched.
(c) Criteria for identifying centers of excellence have developed; and
(d) Some financial resources for designing biosciences and water sciences networks of centers of excellence have been secured. The Canadian International Development Agency

(CIDA) has made available CAD 30 million for biosciences and the French Government allocated Euro 120,000 for developing a network for water sciences.

In addition to the above studies, NEPAD Office of Science and Technology conducted desk reviews of science and technology activities in the various regions. These reviews formed the basis for organizing regional workshops as well as identifying priority programmes.

8. International cooperation in science and technology: An overview of African protocols and approaches—this paper was prepared and first submitted to the first conference of AMCOST November 2003. The paper recommends that through NEPAD African countries should consider:

(a) review and share their experiences in scientific and technological cooperation;
(b) formulate guidelines for regional and international scientific and technological cooperation;[3]
(c) designate a regional agency to facilitate, and where necessary coordinate and monitor, negotiation and implementation of bilateral, regional and international science and technology cooperation; and
(d) identify and develop concrete regional science and technology projects on which they will collectively devote their resources.

There are a number of changes that were made to the original proposal submitted to IDRC. AMCOST through its Steering Committee decided that following products/papers were necessary to enable it to develop the CPA: (a) the questionnaire (b) intellectual property protection (c) intellectual cooperation in science and technology, and (d) science parks and innovation hubs in Africa. These were not planned for but became useful inputs in the preparation of the CPA. The first technical report to IDRC made reference to the changes.

In addition to the specific studies and to inform regional workshops, the following institutions were commissioned to prepare desk reviews on water and biodiversity: (a) the International Water Management Institute (IWMI) Regional Office for Africa based in Pretoria to prepare a study on water sciences and related trends in technological innovations. This study provided an overview of current R&D activities aimed at improving water quality and sanitation in Africa. (b) Council for Scientific and Industrial Research (CSIR) is a preparing a survey of science-based or R&D activities for biodiversity conservation and sustainable use. The survey aimed at profiling

[3] Such guidelines would address issues that emerge from individual countries' desire to build and sustain their national competitiveness as well as to safeguard their intellectual property.

national and regional institutions with programmes for biodiversity science and related technological innovations for conservation and sustainable use.

4.2 Multi-stakeholder dialogues and advisory mechanisms

The successful implementation of NEPAD's science and technology programmes depends on the participation of various stakeholders, including scientists, business and donors. The project grant has enable NEPAD to establish various multistakeholders' processes as well as to create advisory mechanisms for specific science and technology policy issues. Three specific advisory groups were created in 2005:

(a) *High-Level African Panel on Modern Biotechnology*—to enable African leaders to make informed decisions on modern biotechnology the first African Ministerial Conference on Science and Technology instructed NEPAD Secretariat to establish a panel of experts to prepare comprehensive advice on how African countries should build scientific and technological capacities to manage modern biotechnology. In Mid-2005 NEPAD and the African Union (AU) Commission and NEPAD established a panel of fourteen eminent scholars, industrialists and policy-makers, the African Panel on Biotechnology (APB), to design an African policy and strategy for biotechnology and to provide comprehensive and independent science policy advice to the AU. The APB is identifying specific ways of building Africa's capacities to apply and safely handle modern biotechnology. The Panel has held two meetings and is now preparing a draft report that will be submitted to the public for multi-stakeholder input.

(b) *African Experts' Working Group on Science, Technology and Innovation Indicators*—the first NEPAD Ministerial Conference on Science and Technology made decisions emphasizing the need to develop and adopt science, technology and innovation indicators. It also instructed the Secretariat to NEPAD to design a programme that would generate an African Innovation Outlook. The second meeting of the NEPAD Science and Technology Steering Committee resolved that to establish an experts' working group to propose a comprehensive programme or initiative on indicators. Its proposal would then be considered by an inter-governmental session or workshop before being submitted to the African Ministerial Council for Science and Technology for adoption. A working group of

experts was established. It held two meetings and designed a comprehensive programme that was considered and adopted by AMCOST at its second conference.[4]

(c) *Task Team on the African Network of Centres of Excellence in Water Sciences and Technology Development*—one of the flagship programme areas that have received increasing political and international partners' attention is the water sciences and technology programme. As stated earlier the Government of France has provided additional resources to enable NEPAD Office of Science and Technology to establish a network of centres dedicated to water sciences and technology. The Office has created an advisory mechanism for this. A task team of experts and policy-makers was created in mid 2005 to prepare specific criteria and guidelines for identifying and designating centers or institutes that would be networked and strengthened to implement specific projects on water research and related technology development.

One of the challenges faced during the design and implementation of the project was how to organize multi-stakeholders' electronic dialogues. It became clear that it was very difficult to get government officials, private sector, scientists, civil society, and other groups to effectively to engage in dialogue on specific science, technology and innovation issues through the Internet or web-based means because of poor connectivity in the continent. AMCOST Steering Committee decided that regional workshops and consultations be organized instead of electronic dialogues.

During the period November 2004 – January 2005, five regional workshops were organized; one for each region. The workshops were attended by country delegates and regional experts who identified projects that the regions should implement in the 12 NEPAD S&T flagship areas. The projects were of three categories; there were some that were country specific; others were unique to each of the regions while the third group comprised projects that were continental in scope. The project identification process constituted a major resource base for the development of the CPA.

The organization of the regional workshops instead of electronic dialogues increased the costs of implementing the project. The workshops had not been budgeted for and their costs exceeded the budget line for electronic dialogues. However, the organization of the workshops added more value in terms of enhancing cooperation within the regions and strengthening ownership of the process of designing the CPA.

[4] Detailed programme documents prepared by the working group and adopted by AMCOST are annexes to this report.

4.3 *Peer-review and preparation of policy briefs*

To ensure that commissioned background studies are used by policy-makers and are of the necessary quality, the following actions were taken:

(a) Terms of Reference (TORs) for the studies were considered by the Steering Committee of AMCOST;
(b) Experts were requested to review draft papers/studies and revisions made by authors; and
(c) Papers were prepared and submitted to the Steering Committee and Bureau of AMCOST.
(d) Because of resource constraints, only one policy brief was developed.

4.4 Regional coordination and assessments

To coordinate regional assessments and prepare for related workshops, the Steering Committee decided that coordinators be recruited. The NEPAD Office of Science and Technology prepared terms of reference for the coordinators. These were submitted to members of the Committee for approval and use to identify and nominate candidates for the positions of regional coordinators. The following were appointed as Regional Coordinators: (a) Eastern Africa—Dr. Z. Nyira, (b) Southern Africa—Prof. A. Ambali, (c) North Africa—Prof. Dr. Bassem El-Menshawi and (d) West Africa—Dr. Joseph Gogo. A coordinator was not appointed for Central Africa as the countries of the region failed to nominate a person.

The coordinators used the questionnaire developed by Dr. Jim Mullin to conduct assessments of regional science and technology status, needs and existing capacities. Reports for Eastern Africa, Southern Africa and Northern Africa were approved by the Steering Committee and used in the preparation of the CPA. Reports for West Africa and Central Africa have not been finalized

4.5 African ministerial conferences on science and technology

One of the main objectives of the project was to build a high-level political constituency for science and technology in Africa. It specifically aimed at supporting the creation of the African Ministerial Council on Science and Technology (AMCOST). As stated earlier, AMCOST was established in 2003. It is a forum that brings together ministers, senior officials and other leaders to:

(a) critically examine emerging science and technology issues/questions and their implications for Africa's development;
(b) consider and adopt specific decisions that will promote the application of science and technology to achieve NEPAD goals and Millennium Development Goals (MDGs)
(c) provide political and policy leadership to develop and adopt a regional science and technology strategy and action plan
(d) promote exchange of information and good practices in science and technology policy development and implementation; and to
(e) frequently inform the NEPAD Heads of State and Government Implementation Committee (HSGIC) and the African Union summits of key science and technology issues and policies that the continent should take into account.

AMCOST is a high-level policy and political forum for ministers of science and technology from all member states of the African Union (AU). It is the overall governance structure for setting continental priorities and policies pertaining to the development and application of science and technology for Africa's socio-economic transformation. It functions through two subsidiary bodies: AMCOST Bureau of ministers and a Steering Committee comprising of permanent secretaries or their equivalent. The Bureau meets at least once a year while the Steering Committee meets at least twice a year.

The first Steering Committee (SC) as constituted at the November 2003 Conference was chaired by South Africa (as chair of AMCOST) and had representation as follows: Algeria and Egypt (North Africa), Ethiopia and Madagascar (Eastern Africa), Mozambique and Zambia (Southern Africa), Democratic Republic of Congo (DRC) and Gabon (Central Africa), and Ghana and Senegal (West Africa). The African Union (AU) Commission is also represented on the SC.

The SC has held five meetings since its establishment. These have largely focused on the following issues: (a) creating and sustaining bottom-up processes in each of the regions to develop a comprehensive action plan and programmes for science, technology and innovation; (b) determining and/or authorizing the creation of specialized experts' or task teams to deal with specific technical issues; (c) harmonization of the science and technology programmes of the AU with those of NEPAD; (d) budgets and management of finances; (e) dates and venue for the 2nd AMCOST; (e) resource mobilization strategies and actions; and (f) improving governance structures, including rules of procedures for the operations of the SC.

The second African Ministerial Conference on Science and Technology serving as the second meeting of AMCOST was held in Dakar, Senegal 29-30 September 2005. The Conference

considered and adopted 'Africa's Science and Technology Consolidated Plan of Action' as AU and NEPAD science and technology blueprint. It also made specific decisions regarding the implementation of the Consolidated Plan of Action (CPA). These are contained in the 'Resolutions of the Second African Ministerial Conference on Science and Technology'. A detailed report of the Conference is being prepared by the AU Commission. It will be made available in English, Arabic, French and Portuguese. A summary of the Conference's decisions was submitted to the January 2006 AU Summit in Khartoum, Sudan. The Summit decided to dedicate its 2007 agenda to science and technology.

4.6 Outreach and publications

To build a broad-based process and constituency for the science, technology and innovation in Africa, the project has enabled NEPAD Office of Science and Technology to work with and use various media institutions e.g. the South African Broadcasting Corporation (SABC), Scidev.net, and the *Scientist* to communicate with the public. NEPAD Office of Science and Technology has worked with these institutions to prepare press statements on the activities of AMCOST and science and technology in Africa generally. At least five articles or news features on AMCOST/NEPAD science and technology initiatives appeared on Scidev.net since the launch of this project. More than five TV and radio interviews were conducted by SABC Africa on the activities of this project as a whole.

NEPAD Office of Science and Technology has also been able to develop a website dedicated to the activities of AMCOST. The site www.nepadst.org is becoming a popular source of information on science, technology and innovation activities in Africa. It is also being used for electronic dialogues among such panels as the High-level African Panel on Modern Biotechnology. AMCOSTnet is being set-up to encourage intra-ministerial dialogues. Papers generated by this project are posted on the website.

The papers have also been distributed at regional workshops and ministerial conferences. There are plans to edit and publish them in an edited volume in 2006. Because of the changes introduced, particularly with new policy issues identified by AMCOST, as well as the late submission by some of the contracted institutions and persons, it was not possible to publish them during the duration of the project.

5. Project outputs and dissemination

The outputs of the project have been listed above. They include: (a) publications and reports on a range of science, technology and innovation issues, (b) a political forum created: AMCOST, (c) a strategic plan designed: CPA, (d) a number of R&D projects and networks established, (e) regional cooperation in science and technology getting enhanced, and (f) increased African political leadership for science and technology.

In addition, because of this project NEPAD Office of Science and Technology has been able to leverage additional financial resources. These include the Canadian contribution of CAD 30 million for biosciences, France's grant of Euro 120,000, and the Department for International Development (DFID) of the UK has provided UK pounds 450,000 to promote the implementation of the CPA. France has indicated that it provide an additional Euro 100,000 to finalize the design of the network of centres of excellence dedicated to water sciences and technology. Bill and Melinda Gates Foundation has finalized a contract for US$ 600,000 to support implementation of CPA and is considering another grant proposal of approximately US$ 2 million to strengthen NEPAD Office of Science and Technology. A request for Euro 3 million has been submitted to the Government of Finland to support biosciences network for Southern Africa. A proposal to support building of science, technology and innovation policy-making capacity is being finalized for consideration by the Swedish International Development Cooperation Agency (SIDA).

6. Capacity-building

The project has enabled NEPAD to establish a specific office dedicated to science and technology. The NEPAD Office of Science and Technology has also had its capacity strengthened particularly in terms of communications facilities, two administrative staff, and ability to network with the Regional Economic Communities (RECs) and collaborate with the AU Commission. Because of the project, the Office has been able to leverage and acquire office space and a finance/accounts officer from the Department of Science and Technology (DST) of South Africa. The Government of Senegal is considering seconding a communications officer to the Office.

Through the commissioning of the studies/background papers, the project may have strengthened the capacities of some research institutes and individuals. The regional workshops and advisory services may have strengthened interactions or cooperation among African countries.

7. Project Management

The project was the first science and technology initiative that NEPAD Secretariat as a whole was responsible for designing and overseeing implementation. Because of the relatively young age of NEPAD and the limited capacity of its Office of Science and Technology, there were a number of administrative constraints and related failures during the implementation of the project. These are: (a) late submission of technical and financial reports to IDRC, (b) inability to effectively administer subcontracts to ensure that the commissioned studies were delivered on time, (c) low quality of some of the papers as a result of inability to use peer review, and (d) inadequate use of IDRC's technical and administrative capacities. The Office of Science and Technology did not adequately draw on the expertise in IDRC and other international organizations during the implementation of the project. This was mainly because of its limited in-house capacity.

Because NEPAD does not have legal status, IDRC contracted the Development Bank of Southern Africa (DBSA) to manage funds and support NEPAD Office of Science and Technology with accounting. At the time the project was launched DBSA was positioned to administer NEPAD funds including providing financial reports to donors. As NEPAD's project portfolio has grown the Bank's capacity has been overstretched. This led to late reporting to IDRC. It is precisely to address this problem—lack of fund management capacity—that DST is seconding a finance/accounts manager to the NEPAD Office of Science and Technology. In addition to this measure, the Office will use the core grant anticipated from Bill and Melinda Gates Foundation to strengthen its administrative capacity. The grant from DFID is being utilized to establish a financial mechanism—the African Science and Innovation Facility (ASIF) that will be the main institutional arrangement for mobilizing and managing funds for the implementation of the CPA. As an interim measure, AMCOST Bureau has authorized the Office of Science and Technology to enter into an agreement with UNDP's Regional Services Centre in Johannesburg to create a trust fund and provide accounting services to the OST. These measures are aimed at building capacity for managing projects, including funds, for the OST.

8. Impact

The project is likely to have impact in the long-term. However, already there are clear indications that as a result of some of its activities and outputs, there is increasing seriousness and actions by some African governments to improve their science, technology and innovation policies and

systems. Because of the project AU Summit 2007 will be dedicated to science and technology issues. This is an indication of political capital for science and technology being created in Africa.

9. Overall assessment

The project is generated more outputs than was originally anticipated. Within two years it was able to build AMCOST and its bodies, develop CPA and get science and technology issues on the agenda of the AU Summit. It has produced the first comprehensive pan-African science and technology strategy. As stated earlier, it has with just one full-time technical officer being able to leverage increasing international attention to and investment in science and technology for Africa's development.

10. Recommendations

To sustain and enlarge gains made by the project NEPAD Office of Science and Technology recommends that IDRC should consider the following:

(a) providing institutional leadership for other international partners to invest in the implementation of the CPA

(b) support the Office to identify and mobilize relevant Canadian experts and institutions to participate in the implementation of the CPA;

(c) provide funding to one of the core programmes of the CPA based on a proposal from NEPAD; and

(d) support the strengthening of the Office by providing a grant for a programme officer or manager to be based at the Office to coordinate the implementation of future IDRC supported projects.