

Report of the african task team on Water sciences and technology development

Executive Summary

The African Ministerial Council on Science and Technology (AMCOST) decided on water sciences and technologies to constitute one of the main flagship programmes of NEPAD. The NEPAD- Office of Science and Technology (OST) is responsible for the implementation of the flagship programme. A task team on water sciences and technology development was constituted to prepare with the following terms of reference

- (a) Specific criteria and guidelines for identifying and designating centres or institutes that would be networked and strengthened to implement specific programmes for water research and related technology development. Such criteria and guidelines should spell out mechanisms for promoting sharing of the centres' facilities and expertise across the continent as well as a means of ensuring the sustainability of the network.
- (b) Proposals with a clear indication of various options for governance and financing of the network Centres of Excellence in Water Sciences and Technology Development.
- (c) A ministerial dialogue bringing together bureaus of AMCOW and AMCOST to deliberate and make decisions regarding the governance and financing of the networks.

Specific criteria and guidelines have been developed for establishing the networks. This will be incorporated into a call for proposals from African institutes to indicate their intent to be considered to be a centre of excellence in water science and technology development. The indicators address issues related to: scientific innovation, social and economic issues and also capacity building and mentorship. Important considerations in the evaluation of these proposals will be the financial viability of the proposed networks.

The governance and financing mechanism proposals to support the implementation of the water sciences initiative has been submitted to an inter-ministerial dialogue arranged in Cairo, Egypt on 22 November 2006. The dialogue was attended by ministers from Lesotho, Senegal, South Africa and Zimbabwe, senior representatives from Algeria, Egypt, Ethiopia, and South Africa, and representatives from the Office of Science and Technology of the New Partnership for Africa's Development (NEPAD) and the African Union (AU) Commission. Throughout the day delegates discussed issues related to criteria and guidelines, financial mechanisms and governance for the network of centres of excellence in water science and technology (the network), before agreeing to its establishment. The following resolution emanated from the meeting:

- Commitment to establish an African Network of Excellence in Water Sciences and Technology Development
- Adoption of the revised criteria and guidelines proposed in the NEPAD document on "Establishing an African Network of Centres of Excellence in Water Sciences and Technology Development: Criteria and Guidelines" taking into account our comments and decisions.
- Call upon NEPAD and AMCOW Secretariats to prepare and submit to AMCOST and AMCOW Ministers a comprehensive document with specific proposals or recommendations on the governance mechanism for the African Network of Centres of Excellence in Water Sciences and Technology Development.
- Call upon NEPAD and AMCOW Secretariats to submit to AMCOST and AMCOW Ministers a comprehensive proposal on financing the African Network of Centres of Excellence in Water Sciences and Technology Development.

- Encourage AMCOST Ministers to allocate a percentage of funding in the proposed African Science and Innovation Facility to the African Network of Centres of Excellence in Water Sciences and Technology Development
- Encourage AMCOW Ministers to explore the possibility of establishing a special fund in the African Water Facility for supporting the African Network of Centres of Excellence in Water Sciences and Technology Development
- We ask the NEPAD Office of Science and Technology to report on the progress of establishment of the African Network of Excellence in Water Sciences and Technology at the next meetings of AMCOST and AMCOW.

The resolutions of the above dialogue are being implemented in the comprehensive business plan to be tabled at the 3rd AMCOST Summit/Conference/Symposium to be held in Nairobi, Kenya during September 2007.

Introduction

The first African Ministerial Council on Science and Technology (AMCOST) held in Johannesburg, South Africa 6-7 November 2003 decided on water sciences and technologies to constitute one of the main flagship programmes of NEPAD. This was further elaborated at the 2nd AMCOST through the adoption of the Africa's Science and Technology Consolidated Plan of Action.

A workshop was held in Nairobi Kenya in May 2005 with water experts. A number of recommendations emanated from this workshop. One of the recommendations was to establish an African Task Team on Water Sciences and Technology Development. The workshop was organized by NEPAD Science and Technology Forum, French Institute of Research for Development (IRD), United Nations Environment Programme (UNEP) and United Nations Education, Scientific and Cultural Organization.

The workshop was jointly funded by the French Ministry of Foreign Affairs, NEPAD, UNEP, and UNESCO and supported by the African Ministerial Council on Water (AMCOW).

Soon after the Nairobi meeting, the NEPAD Secretariat constituted an African Task Team on Water Sciences and Technology Development. The first meeting was held in Pretoria, South Africa and the second meeting of the task team was held in Cairo.

The task team as constituted consisted of representatives from Algeria, Burkina-Faso, Cameroon, Ethiopia, France, Malawi, Niger, Nigeria, Senegal, South Africa, Sudan and Uganda.

The terms of reference for the task team were to prepare:

- Specific criteria and guidelines for identifying and designating centres or institutes that would be networked and strengthened to implement specific programmes for water research and related technology development. Such criteria and guidelines should spell out mechanisms for promoting the sharing of the centres' facilities and expertise across the continent as well as a means of ensuring the sustainability of the network.
- Proposals with a clear indication of various options for governance and financing of the network Centres of Excellence in Water Sciences and Technology Development.
- A ministerial dialogue bringing together bureaus of AMCOW and AMCOST to deliberate and make decisions (Appendix 4) regarding the governance and financing of the networks.

This report details the various activities that has been completed to meet the terms of reference as decided in the Nairobi meeting and also to report on future activities (Appendix 5).

1. Establishing an African Network of Centres of Excellence in Water Sciences and Technology Development: Criteria and Guidelines

Background

African leaders have identified water scarcity and related insecurity as one of the sources of the continent's underdevelopment and increasing economic decline. Thus, they have placed issues associated with the development, supply and management of water high on the agenda of the NEPAD. In the framework of NEPAD, the leaders have committed themselves to "ensure sustainable access to safe and adequate clean water supply and sanitation, especially for the poor" and "[to] plan and manage water resources to become a basis for national and regional cooperation and development."

In September 2000 African countries and the international community adopted the Millennium Development Goals (MDGs) at the United Nations Millennium Summit. They committed themselves to seek and devise practical solutions to major challenges of global poverty and insecurity facing the majority of the world's population, especially those in Africa. The MDGs are:

- Goal 1: Eradicate extreme poverty and hunger;
- Goal 2: Achieve universal primary education;
- Goal 3: Promote gender equity and empower women;
- Goal 4: Reduce child mortality;
- Goal 5: Improve maternal health;
- Goal 6: Combat HIV/AIDS, malaria and other diseases;
- Goal 7: Ensure environmental sustainability;
- Goal 8: Develop a global partnership for development

Achieving the MDG goals on water will require investments in science and technology. Science and technology play important roles in water development, supply and management. They are crucial for assessing, monitoring and ensuring water quality. The WSSD Plan of Implementation recognizes the role of science and technology in meeting water goals. In paragraph 27 it commits governments to "improve water resource management and scientific understanding of the water cycle through cooperation in joint observation and research, and for this purpose encourage and promote knowledge-sharing and provide capacity-building and the transfer of technology, as mutually agreed, including remote-sensing and satellite technologies, particularly to developing countries and countries with economies in transition." In addition, to ensure that adequate clean water is available to majority of Africans, affordable rural water technologies will be required.

The first NEPAD Ministerial Conference on Science and Technology held in Johannesburg, South Africa 6-7 November 2003 decided on water sciences and technologies to constitute one of the main flagship programmes of NEPAD. The flagship programme will be designed to strengthen the continent's capabilities to harness and apply science and technologies to address challenges of securing adequate clean water as well as managing the continent's water resources. The Conference decided that a network of centres of excellence in science and related technological innovation is needed.

The proposed network will focus on water quality, sanitation and water resources management. Emphasis is placed on promoting increased use and production of scientific knowledge and technological innovations. Its specific goals are to:

- (a) Improve the conservation (protecting aquatic and associated ecosystems and their biological diversity) and utilization of the continent's water sources
- (b) Improve the quality and quantity of water available to rural and urban households

- (c) Strengthen national and regional capacities for water resource management and reduce the impacts of water-related disasters (e.g. floods, droughts and water related diseases)
- (d) Enlarge the range of technologies for water supply and improve access to affordable quality water.
- (e) Ensuring water for economic development such as industry, mining, power generation, infrastructure, transport and nature (wildlife) conservation.

Indicative projects

Assessment of Africa's Water Resources and Systems

There is a relatively poor knowledge base of and scanty information on Africa's water resources and related ecosystems. Building scientific information on the continent's water resources is crucial for improving their development and sustainable management. Scientific research and assessment are also important to inform the formulation and implementation of policies and development of technologies for integrated water management. This proposed project will focus on:

- (a) Developing common scientific methodologies and tools for conducting a systematic assessment of the continent's water resources and ecosystems. Emphasis will be placed on river basins and underground water systems.
- (b) Training African scientists and technicians on the methodologies and tools to conduct water assessments
- (c) Launching and conducting water assessments at sub-regional and regional levels
- (d) Developing a databank of Africa water resources and ecosystems; and
- (e) Disseminating scientific information on the nature of water resources and ecosystems.

Research and Technologies to Assess and Monitor Water-related Disasters¹ (Emphasis on floods)

Many African countries suffer from frequent floods along their rivers and other water bodies. The impacts of floods on the continent's economies are significant and increasing. Every year thousands of people die and infrastructure estimated at millions of US\$ is destroyed as a result of floods. While in the short-term floods cannot be prevented, their impacts can be reduced if appropriate technologies are used to conduct forecasts. Forecasts that provide relatively long lead time can be used to evacuate people from high-risk areas or even to create retention basins to reduce flood peaks and volumes.

This project will explore the possibility of developing and applying a continent-wide flood forecast system. It will focus on:

- (a) Identifying and assessing existing technologies for flood control to determine their applicability in Africa. Emphasis will be placed on the kinds of resources required to acquire, modify and apply the technologies in Africa
- (b) Developing a databank and disseminating information on the technologies

¹ Drought and desertification are addressed in the flagship programme focusing on combating drought and desertification. The overall objective of this programme is to strengthen the scientific and technical capacities of African countries to combat drought and desertification. Its specific goals are to:

- (a) Improve scientific understanding of and sharing of information on the causes and extent of drought and desertification in Africa;
- (b) Mobilize, build and promote sharing of scientific expertise and technical skills in drought and desertification related research; and
- (c) Grow regional and continental centres of excellence in drought and desertification research.

- (c) Conducting research to modify, improve and develop flood control technologies

Knowledge and Technologies to Improve Water Quality and Quantity

A fundamental prerequisite to the development and application of technologies for improving water quality and sanitation in Africa is a systematic and extensive set of water quality data on both sources of impairments and existing technical responses. Data are required to assess the different sources of contamination and their impacts. Many African countries do not have scientifically strong systems for assessing water quality and quantity as well as the relative seriousness of the related environmental and human health problems.

In addition to the generation of data, deliberate efforts need to be made to develop technologies for improving quality as well as increase the supply of water to African households.

This project will focus on:

- (a) Reviewing existing international water quality assessment methodologies and techniques and promoting the use of appropriate ones through training workshops and postgraduate studies on water quality
- (b) Research on and development of desalination technologies, with emphasis on small modular units that use low and renewable energy
- (c) Research on and related technology development for treating and supplying drinking water from aquifers. This is crucial to ensure that poor populations in peri-urban areas have access to clean water
- (d) Research and application of knowledge on eutrophication. A key aspect of improving and managing water in Africa is the prevention of eutrophication of dams, rivers and lakes, and biological control of weeds. It is recommended that research be conducted to develop new technologies to address eutrophication -related problems.

Network of Centres of Excellence to implement the NEPAD Water Sciences and Technology Flagship Programme

As stated in the background, to implement the flagship programme, an African Network of Centres of Excellence is proposed. There are at least two reasons why there is a need to establish a network of centres of excellence. The first is to enable the continent to pull together and efficiently use its scarce human and infrastructural resources. Many African scientists, engineers and technicians as well as institutions are confronting similar problems, but tend to work in isolation. By networking the best available institutions, expertises and infrastructure spread over Africa, scientific productivity and innovation may be significantly increased. Secondly, establishing networks of excellence will enable the continent to exploit the diversity of institutions and programmes available across the continent.

The proposed African Network of Centres of Excellence in Water Sciences and Technology may comprise of:

- (a) Multidisciplinary teams of individuals from different institutions, either formal or informal. The teams are assembled to solve specific problems. These are largely networks of problem-solvers and innovators.
- (b) Networks of existing institutions whose facilities, expertise and structured get linked together to implement specific programmes
- (c) Single centres such as a university department or institute

Below are the proposed indicators that may be used as criteria to identify and designate centres to constitute the network. The list is not exhaustive, but may inform decision-makers and help AMCOST and AMCOW to take a common approach to establishing the network.

Indicators

Scientific and innovation

Scientific outputs (quality of ongoing research and innovation)

Number of peer reviewed publications;

Number of patents, national and international;

Level of scientific excellence, as determined by an external evaluator on the basis of peer judgment

Availability of appropriate infrastructural facilities

Functioning state of art equipment

Appropriate system of maintenance and repair of equipment

Adequate supply consumables

Adequate library facilities and Internet connections

Outstanding leadership and quality of staff

Regional and international recognition in scientific research

Managerial, facilitating and maintaining skills

Communication skills particularly with decision makers and general public

Fund raising skills

Availability of an appropriate budget for programmes and activities and commitment by local Government to provide support to ensure the continuity and sustainability of the operation of the centre

Annual budget of the Centres

Commitment by Government to support the Centre

Output of services

Number of clients per specific categories

Volume of revenues

Percentage of annual growth in R&D and non-R&D services

Percentage of value of services related to sustainable development

Delivery system/entrepreneurship

Percentage of income from clients in total budget

Percentage of costs of developing awareness (market research, advertisement, brochures, exhibitions, personal contacts, presentations, Internet, etc.) in total income from clients

Percentage of repeat clients in total clients

Number of new service areas launched

Management systems

Personnel management

Remuneration of scientists (base salary plus incentives) at entry level and senior level. Comparison with remuneration in non-R&D sectors

Percentage turnover of scientists (should not be too high or too low)

Staff satisfaction with working conditions, established through a survey

Financial management

Appraisal of quality of financial management determined by an external evaluator

Project management

Percentage of projects delivered on time

Percentage of projects delivered within project budget

Performance of the institute

Percentage of growth of budget

Percentage of growth of staff

Percentage of growth of client income in budget

Number of national missions/assignments in which the institute is involved

Number of scientists that have received national and international awards

Number of scientists in international committees, boards of journals, etc.
Satisfaction of government and its agencies with institute's excellence and performance, established through a survey
Satisfaction of industry with institute's excellence and performance, established through a survey

Participation in regional and international water programmes
Regional and international activities in which the Centre is participating

Social and economic

Regional and continental outlook of the centres and ability to network within the institution's host country and in the continent
Joint activities/initiatives with institutions in the host country as well as in the continent

Flexibility and ability to forge scientific and technical partnerships with institutions in other developing regions
Joint activities/initiatives with institutions outside Africa

Relevance and impact of research output, including transfer of water technologies to poor African households
Recognised contributions to solving local and regional problems in issues related to water

Partnerships with industrial and private sectors to develop and market water technologies
Joint activities/initiatives with local institutions and private sectors

Implement an integrated water resource management (IWRM) approach at local, national and transboundary levels
Percentage of projects devoted to sustainable development objectives such as environmental protection and improvement of water quality
Percentage of projects devoted to transboundary and governance issues

Address sustainable access to safe and adequate water and sanitation services for all
Percentage of projects devoted to supporting the implementation of the MDGs

Capacity building and mentorship

Demonstrated capacity to train and retain new generations of water expertise skills as well as facilitate their mobility and sharing of expertise, and ability to mentor other institutions
Post graduate education programmes
MSC and PhD students
Postdoctoral students
Short term visitors
Partnerships with other institutions, particularly the less endowed

Human resource development

Percentage of scientists with training in advanced areas
Percentage of scientists undergoing training for a higher degree
Satisfaction of scientists regarding opportunities for personal development, established through a survey

2. Governance of and financial Mechanism(s) for the Sustainability of the Network of Centres of Excellence in Water Sciences and Technology

The effectiveness, efficiency and sustainability of the proposed network of centres of excellence will largely depend on the nature of governance and financial mechanisms that are put in place by African governments. Clear structures for coordination, policy-making, resource mobilization and allocation, are monitoring and evaluation will be required. To establish appropriate structures and related instruments, it is proposed that the Secretariat of NEPAD in collaboration with AMCOW Secretariat and IRD should prepare a comprehensive proposal with a clear indication of various options for governance of the network. Such a proposal may consider

- (a) the establishment of an inter-ministerial committee bringing together bureaus of AMCOW and AMCOST to constitute the overall governing council of the network. Representatives of partner countries can be invited to serve on the council. The council would be responsible for the approval of the programme of work of the network and related policy-making matters relating to financing. It would report to the NEPAD Heads of State and Government Implementation Committee on the performance, financing and management of the network
- (b) the establishment of a technical advisory committee that would consider project proposals for competitive grants, monitor and review performance of the network, and submit reports to the proposed governing council
- (c) the creation of Network Coordination Office in one of the network's hubs or centres. The Office would deal with day-to-day administrative and coordination tasks

In terms of a financial mechanism, there is a need to consider the following:

- (a) The establishment of a special trust fund in the African Water Facility. The trust fund would be the financial mechanism for the network. Africa governments would be called upon to make contributions to the fund on the basis of clear criteria. These may include: host countries of the centres being required to make some minimum annual contributions, others contributing on access basis of the GDP, etc.
- (b) The establishment of a donors' group comprising of bilateral and multilateral donors private foundations, and others willing to contribute to the proposed trust fund. Clear principles would be adopted to ensure that donors do not unnecessarily cause incoherency in the network's programme as a result of different competing interests. Flexibility should be created so that donors can also fund specific projects and programmes of the network.
- (c) Sale of products or patents, publications, etc from the network's projects to generate revenue. Such other ways as the collection of water fees and public-private partnerships should be explored to generate financial resources for the network
- (d) Guidelines for the allocation of financial resources from the proposed trust fund would be developed and adopted by the governing council
- (e) The governing council would establish a special ministerial committee on funding the network. Such a committee would ensure that strategies for resource mobilization and allocation are designed and implemented.

3. Inter-ministerial dialogue on building an African network of centres of excellence in water sciences and technology

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The Inter-Ministerial Dialogue on Building an African Network of Centres of Excellence in Water Sciences and Technology was held jointly by the Bureaus of African Ministerial Council on Science and Technology (AMCOST) and the African Ministerial Council on Water (AMCOW) on Wednesday, 22 November 2006, in Cairo, Egypt. The dialogue was attended by ministers from Lesotho, Senegal, South Africa and Zimbabwe, senior representatives from Algeria, Egypt, Ethiopia, and South Africa, and representatives from the Office of Science and Technology of the New Partnership for Africa's Development (NEPAD) and the African Union (AU) Commission. Throughout the day, delegates discussed issues related to criteria and guidelines, financial mechanisms and governance for the network of centers of excellence in water science and technology (the network), before agreeing to its establishment.

Opening statements

Chair of the dialogue and of AMCOST, Yaye Kene Gassama Dia, Senegal's Minister of Science and Technology, highlighted the importance of technology transfer and science and development in agriculture, health and water resources, and welcomed progress in the establishment of a network of centres dedicated to science and technology (S&T) in the water sector. She called for a dynamic partnership between AMCOST and AMCOW, and for enhanced coordination between the two bodies. She stressed that the network would assist in the development of common policies and the provision of research and data.

Lesotho's Minister of Natural Resources, Mamphono Khaketla, welcomed the dialogue as an opportunity for interaction between ministers of water, and S&T. South Africa's Minister of Water Affairs and Forestry, Lindiwe Hendricks, noted that Maria Mutagamba, Minister of State for Water (Uganda) and AMCOW Chair, had stressed the importance of water research being demand-driven, and that AMCOW should play a pivotal role in setting Africa's water research agenda. She emphasized the importance of AMCOW having direct access to Africa's water research capacity. She also expressed concern regarding the proliferation of water and S&T-related processes and called on the NEPAD Office of Science and Technology to ensure coherence and coordination.

A representative for Egypt's Minister of Water Resources and Irrigation said that water, like S&T, is a cross-cutting issue requiring coordination between ministries and across sectors. He said the main problem is not always scarcity of water resources, but often the management of such resources, and urged a focus on applied research in the water sector.

Report of the African Task Team on water science and technology development

Kevin Pietersen, Water Research Commission (South Africa), on behalf of the Task Team, delivered a presentation on the development of the flagship programme of Africa's Science and Technology Consolidated Plan of Action (CPA) on water, science and technology development, and related criteria and guidelines. He said the flagship programme is currently focusing on stakeholder relationships, attracting financial resources, and learning and innovation. He stressed the need to link the flagship programme with international water programmes and global partnerships. On resource mobilization, he said a target of US\$2 million has been set.

On the way forward, he said there would be a process of assessing institutional profiles, selecting institutions, promoting and supporting funding proposals, and considering governance mechanisms. He noted that a database of African water institutions and experts is being developed, along with a comprehensive business plan for 2007-2012, and the identification of potential nodes for the centres.

In the ensuing discussion, a representative for Egypt's Minister of Water Resources and Irrigation stressed the need to learn from previous experiences and to include applied research centers in the field of water research in the network

Criteria and guidelines for establishing a network of centers of excellence

John Mugabe, NEPAD Office of Science and Technology, introduced the experts' recommendations for criteria, guidelines and indicators for identifying centers of excellence. He said there has been an increasing focus on the importance of centers of excellence; that no common definition of centres exists, and that AMCOST had requested the AU and NEPAD to develop criteria and guidelines to identify such centres. He then outlined the generic criteria prepared by the AU and NEPAD.

In the ensuing discussion, Chair Gassama Dia stressed the need to have a system for weighting indicators and a process for identifying experts tasked with deciding on the designation of centres. South Africa supported the idea of networks of institutions across borders. Lesotho expressed concern that the current guidelines address S&T generally, rather than water specifically. She proposed an indicator dealing with teaching excellence, including a mechanism to review curricula, and an indicator on mentoring, suggesting that designated centers could mentor other institutions. She said the guidelines should not be limited to government-run institutions.

Noting that Africa's five regions are not equally developed, a representative from Algeria's Embassy in Egypt said there should be unique criteria for each region. He also noted concern over the indicative list of institutions and questioned how institutions would be selected. Egypt proposed additional criteria on applied research and training. Zimbabwe's Minister of Science and Technology Development, Olivia Nyembezi Muchena, stressed the need for centres to exploit Africa's academic resources and to focus on building a critical mass of African scientists in the water sector.

John Mugabe clarified that the generic criteria could be amended to meet the needs of each sector and welcomed the proposals on mentoring, teaching excellence and the inclusion of private institutions. South Africa underscored the need to address the definition of a water centre of excellence and said AMCOW could not endorse generic criteria, but could only endorse specific criteria on water S&T. Chair Gassama Dia said the criteria should reference the ability of centres to meet water and sanitation objectives. Lesotho highlighted the need to have water-specific guidelines and supported Chair Gassama Dia's comment on criteria related to sanitation.

After informal discussions, John Mugabe presented revised guidelines, highlighting that they now included objectives, indicative projects and indicators for identifying water centres of excellence. He noted that the indicative projects emerged from previous consultative sessions and AMCOW's Strategic Plan, and that they were adopted by AMCOST in the CPA. He also explained that the indicators were categorized as related to scientific research and innovation, social and economic outputs, and capacity-building and mentorship.

Several countries, including South Africa, said the revised guidelines were a positive development. Egypt suggested referencing water management in addition to scarcity. South Africa proposed explicit reference to the Millennium Development Goals and, with Lesotho,

proposed comparing the listed indicators to the generic indicators. Lesotho questioned whether diseases were included when referencing “disasters,” recommended discussing water for a broad array of uses, stressed the importance of emphasizing droughts, and questioned the relative weight given to the indicators.

In response, John Mugabe said the document would be revised to take account of ministers’ comments. Ministers then adopted the text as a “living” document.

Financial mechanisms for the network of centers of excellence

John Mugabe presented the experts’ recommendations on financing. He highlighted recommendations on: establishing a special trust fund to finance the network under the African Water Facility (AWF), and calling on countries hosting nodes to make minimum annual contributions and on all African countries to make non-voluntary GDP-based contributions; establishing donor groups to contribute to the trust fund while ensuring that donors do not “contribute to incoherence”; ensuring the network becomes self-sustaining via, inter alia, public-private partnerships, and considering the collection of water fees for this purpose; developing guidelines for the allocation of funds; and establishing a ministerial committee focused on funding the network.

Lesotho said the AWF is struggling to attain adequate funding and questioned whether the trust fund would compete with the AWF for funds and how funds generated by centres of excellence would be shared. She suggested that the AWF’s mandate would have to be modified by the African Development Bank to incorporate the aims of the trust fund and, with Egypt, supported the suggestion that countries hosting nodes in the network be required to contribute funds. Lesotho and Egypt agreed that the collection of water fees requires further consideration. South Africa suggested that considering funding only within the AWF could be limiting, that funding directed at research should also be sought, and that guidelines for accessing funding be separated from guidelines for recognizing centres.

In response, John Mugabe agreed on the need to explore whether the AWF could accommodate such a trust fund and said other institutional possibilities existed. Ministers deferred on the recommendations on financing, given the need for refinement by the NEPAD Office of Science and Technology.

Governance of the networks of centres of excellence

John Mugabe presented the experts’ recommendations on governance. He stressed that the governance mechanisms need to reflect the intergovernmental nature of AMCOW and AMCOST, and outlined a possible three-tiered governance structure. He explained that the first tier would be comprised of an inter-ministerial committee of AMCOW and AMCOST as the governing council of the network, which would approve the programme of work and make decisions on financing, including on resource allocation. He said the second tier would consist of a technical advisory committee that would report to the inter-ministerial committee, which would ensure quality control, review proposals on a competitive basis, and evaluate and monitor implementation, and that the third tier would be comprised of a network coordination office to oversee daily administrative and coordination initiatives.

In the ensuing discussion, South Africa noted the experts’ recommendation that the NEPAD Office of Science and Technology, in collaboration with AMCOW, prepare a comprehensive proposal for the governance of the network. She said that AMCOW needs to further discuss the experts’ recommendations and said it would be premature to adopt the proposed governance structure. John Mugabe clarified that the task team had proposed the governance structure for consideration by ministers, but stressed that a decision is not required immediately. He said the NEPAD and AMCOW Secretariats would further develop the

governance structure for consideration by AMCOST and AMCOW. Supporting South Africa, Lesotho opposed the creation of new layers of administrative bureaucracy and said existing structures such as the AMCOW Secretariat could be used for governing the network. Chair Gassama Dia concluded the session by noting that the NEPAD and AMCOW Secretariats would refine the governance structure for future consideration by AMCOW and AMCOST.

Closing session

John Mugabe presented a draft inter-ministerial declaration. Lesotho, supported by South Africa, said the language on governance and finance could not be approved, as these issues are still being deliberated. Regarding ASIF, Lesotho said this was not a decision for AMCOW, but noted that it may be appropriate for AMCOW to encourage AMCOST to consider allocating a percentage of ASIF funds to the network. She agreed with John Mugabe's recommendation that the NEPAD Office of Science of Technology report to both AMCOW and AMCOST at their next meetings. South Africa said the text should specifically reference the water S&T criteria, and that the reference to the indicative list of institutions should be deleted from the resolution. Lesotho and South Africa also said it would be appropriate to adopt resolutions related to the establishment of the network and to recognize the criteria and guidelines as a "living" document that would be further refined and improved. Ministers then adopted the interministerial declaration as revised, approving the establishment of the network, approving its guidelines as a "living document," and requesting the AMCOW Secretariat and the NEPAD Office of Science and Technology to work further on governance and financing.

In closing the dialogue, Chair Gassama Dia, welcomed the agreement on the creation of the network and thanked dialogue participants, officials involved in drafting documents for the dialogue, and the Government of Egypt for its hospitality. A representative for Egypt's Minister of Science and Higher Education said that Egypt considers the work of AMCOST and AMCOW to be vital to all AU member states. Lesotho expressed pleasure that the dialogue had ended in a constructive manner and, with South Africa, noted that they would convey the outcomes of the dialogue to AMCOW. South Africa also expressed hope that, as participants had given their political stamp to the establishment of the network, they would be able to receive documentation to take back to their capitals for preparing institutions that might join the network. Chair Gassama Dia closed the meeting at 4:25 pm.

4. Resolutions of the inter-ministerial dialogue between AMCOW and AMCOST on establishing African network of centers of excellence in water sciences and technology

**Adopted on 22th November 2006
Cairo, Egypt**

Preamble

WE, the Ministers responsible for science and technology and water, meeting at the Inter-Ministerial Dialogue on Establishing an African Network of Centres of Excellence in Water Sciences and Technology Development in the framework of the African Union (AU) and the New Partnership for Africa's Development (NEPAD) on 22 November 2006 in Cairo, Egypt;

Recall the commitments by African leaders to “ensure sustainable access to safe and adequate clean water supply and sanitation, especially for the poor” and “[to] plan and manage water resources to become a basis for national and regional cooperation and development”

Call to mind the World Summit on Sustainable Development WSSD Plan of Implementation which recognizes the role of science and technology in meeting water goals. In paragraph 27 it commits governments to “improve water resource management and scientific understanding of the water cycle through cooperation in joint observation and research, and for this purpose encourage and promote knowledge-sharing and provide capacity-building and the transfer of technology, as mutually agreed, including remote-sensing and satellite technologies,

Support the implementation of the water sciences and technology flagship programme as articulated in Africa's Science and Technology Consolidated Plan of Action.

Guided by the deliberations and recommendations of the NEPAD Task Team on water sciences and technology;

WE HEREBY:

Commit ourselves to establish an African Network of Excellence in Water Sciences and Technology Development

Adopt criteria and guidelines proposed in the NEPAD document on “Establishing an African Network of Centres of Excellence in Water Sciences and Technology Development: Criteria and Guidelines”. We ask NEPAD Secretariat and the NEPAD Task Team on Water Sciences to revise the document, taking into account our comments and decisions.

Call upon NEPAD and AMCOW Secretariats to prepare and submit to AMCOST and AMCOW Ministers a comprehensive document with specific proposals or recommendations on the governance mechanism for the African Network of Centres of Excellence in Water Sciences and Technology Development.

Call upon NEPAD and AMCOW Secretariats to submit to AMCOST and AMCOW Ministers a comprehensive proposal on financing the African Network of Centres of Excellence in Water Sciences and Technology Development.

Encourage AMCOST Ministers to allocate a percentage of funding in the proposed African Science and Innovation Facility to the African Network of Centres of Excellence in Water Sciences and Technology Development

Encourage AMCOW Ministers to explore the possibility of establishing a special fund in the African Water Facility for supporting the African Network of Centres of Excellence in Water Sciences and Technology Development

We ask the NEPAD Office of Science and Technology to report on the progress of the establishment of the African Network of Excellence in Water Sciences and Technology at the next meetings of AMCOST and AMCOW.

We express our gratitude to the South Africa Water Research Commission, NEPAD Office of Science and Technology, NEPAD Task Team on Water Sciences, French Institute of Research for Development (IRD), United Nations Environment Programme (UNEP) and United Nations Education, Scientific and Cultural Organization (UNESCO) and French Ministry of Foreign Affairs for their commitment and support of the initiative to establish an African Network of Centres of Excellence in Water Sciences and Technology.

EXPRESS our profound gratitude to HE Hossni Mubarak, President of the Arab Republic of Egypt, the Government and the People of Egypt for their warm hospitality we received at this meeting.

5. Future activities

5.1 IRD-NEPAD

- 5.1.1 **The New Partnership for Africa's Development (NEPAD)** has formed an alliance with the Government of France to support the creation of an African network of centres of excellence in water science and technology development.

The **NEPAD Office of Science and Technology (NEPAD-OST)** is tasked with the implementation of network of centres of excellence.

The **South African Water Research Commission (SA-WRC)** was appointed by NEPAD-OST to be its focal point for the initiative on water sciences and technology development.

The NEPAD-OST set up a panel of experts on water sciences (**Task Team**) to provide the NEPAD-OST with scientific and technical advice on the development of the business plan and related aspects of its implementation: criteria and guidelines for identifying and designating centres or institutes that would be networked and strengthened. Two French researchers from the **Institute for the Development of Research (IRD)** participated in the Task Team deliberations.

The IRD was appointed by the **French Foreign Office** to coordinate and implement the French contribution to the NEPAD initiative in the water sector and to assist the NEPAD-OST in its charge.

The Department Earth and Environment (DME) of IRD mobilised an expert to lead the collaboration with the NEPAD-OST.

The French Foreign Office allocated funds in 2006 (100 000 Euros) and in 2007 (115 000 Euros). They are managed by the SA-WRC (more than 43%) and IRD/DME (57%).

- 5.1.2 In this framework, IRD/DME attended the meeting of the Task Team on water science in Cairo (December, 2006)², the African Ministerial Council on Science and Technology/AMCOST conference (20th-24th December, 2006)³ and of the inter-ministerial dialogue AMCOST-AMCOW/African Ministerial Council on Water (22nd December, 2006)⁴. In Cairo, the IRD submitted to NEPAD-OST some comments about the conclusions of the Task Team and the ministries, and suggested some ways to improve the plan of the network implementation proposed by the Task Team: criteria, guidelines, a comprehensive profile of a centre of excellence and, in addition, process of selection, governance and financial mechanisms for the network of centres.

5.2. The meeting IRD- NEPAD-OST

The meeting was a continuation of this discussion. In the beginning of 2007, IRD suggested a meeting with NEPAD-OST, to re-address these issues and set up an annual action plan until September, 2007 to coincide with the next AMCOST conference.

² Notes sur la mission en Afrique du Sud 27 - 28 Septembre 2006, J.Boulègue (dir. DME), P.Sanglier (DME)

³ Rapport de mission auprès des conférences UA/NEPAD, Le Caire, 19 - 24 novembre 2006, Perrine Sanglier, en français

⁴ Resolutions of inter-ministerial dialogue between AMCOW and AMCOST on establishing African network of centres of excellence in water sciences and technology, Cairo, Egypt

It was attended by Kevin Pietersen (SA-WRC), Perine Sanglier (IRD/DME), and with Jean-Marie Fritsch, a representative of IRD in South Africa.

IRD submitted a plan/process for the implementation of the network. It is based on the principle of transparency, to ensure a fair and balanced process in respect of the interests of all countries and the regional approach of the NEPAD, and to ensure final agreement of AMCOST and AMCOW. The inter-ministerial dialogue AMCOST-AMCOW demonstrated the limits of the Task Team's proposals to take charge by establishing criteria and evaluation procedures of potential centres. The process needs to be "open" to reach the set objectives and to convince AMCOST/AMCOW of the need and viability of centres of excellence.

After discussion about the IRD proposal, the project which will be submitted to John Mugabe, Head of the NEPAD-OST and comprises four stages. The stages have been adapted in discussions held with John Mugabe to the following:

Develop a report detailing the outcomes of the AMCOW/AMCOST meeting and write a letter to the Minister of Water for Lesotho (with a cc to the Minister of South Africa) to present/table the report at the 6th AMCOW Ordinary Session, Brazzaville Republic of the Congo to be held on 16th March 2007.

Develop advocacy material (2-3 pages) on the water sciences initiative (including presentation material) to be used as advocacy material to various stakeholders, including possible funding agencies (Kevin Pietersen).

Set up meetings with key stakeholders to discuss the implementation of the water sciences initiative.

For the end of March, NEPAD-OST and IRD (K Pietersen and P Sanglier) write terms of reference for a call for proposals and draw up a list of experts to constitute the "scientific" committee.

- 1) They use the work of the Task Team (criteria, guidelines) and recommendations of AMCOST-AMCOW.
 - (a) General presentation of the NEPAD project
 - (b) Presentation of the specific objective: to build a network of centres. It is not to support a research programme, or an institution, or a team, etc. It is to set up and implement a "system" which is able to produce, in each region, teaching (future researchers and professionals), research and innovation, by sharing means and experiences, by promoting leaders and supporting them to develop other competencies.
 - (c) Definition of a centre and criteria: the actual one is too wide. It could be specified and tightened after the regional visits (*cf.* point 5): legal position, type, dimension, etc.
 - (d) Description of the potential support from NEPAD:
 - i) what for : specific equipment of a technical or academic platform, design/implementation/ maintenance of a regional web site, duplication of an academic training, design and launch of a regional research or training programme, etc.
 - ii) base of calculation
 - iii) modalities for transfer/management
 - (e) Duration (nothing was said about this point).
 - (f) Some recommendations to file the template

- (g) Evaluation process: by a specific “scientific” committee (*cf.* point 2)
- (h) Criteria for evaluation
- (i) Schedule: it will be fixed later. It depends on the AMCOST decision. AMCOST will have its next meeting in September, 2007. We can expect to launch the call before the end of the year, and have final decision (selection) for the spring of 2008. Projects could be supported from October, 2008. Based on experience, the management of an international call needs one year.

2) **NEPAD-OST and IRD draw up a list of persons to constitute the “scientific” committee.**

- (a) Purpose. It is not to value research programmes, but capacities of a candidate to lead research and training activities, to associate competencies, institutions and stakeholders, to build and manage a regional network. Thus, the committee will not be a “scientific” one in the true sense of the word. It will include scientists, experts on capacity-building projects, experts on institutional management, experts on new technologies of communication and information, Experts will be selected for their own experiences and competences, not as a representative of an institution.
- (b) Composition. The committee will be composed of 15 persons: 10 from Africa, two per region ; 5 from the North, two from France and three from other countries. NEPAD-OST and IRD will draw up a list of 30 potential names, based on a mutual agreement on each name. The Bureau of AMCOST will name the 15 experts.
- (c) Mission and functioning. The committee intervenes for the initial valuation of a project and the final one. The evaluation of each project is carried out by two experts of the committee, selected by NEPAD-OST. They will present their conclusions to the committee which adopts its final position by general consent. The final decision is made by the Bureau of AMCOST (or a joint board AMCOST-AMCOW), based on a short list suggested by the committee. The intermediary evaluation will be made by two experts, who will evaluate the project. They will send their opinions to NEPAD-OST.

Terms of reference (1) and the list of experts (2) will be submitted to the Bureau of AMCOST by NEPAD-OST at the end of July (also reports on regional visits, *cf.* point 3). We expect the agreement during the AMCOST Conference in September, 2007.

At the beginning of April 2007, based on the terms of reference, NEPAD-OST and IRD will organise information of partners and regional visits.

- 3) Information to the African community, based on a list drawn up by NEPAD-OST. It eliminates the need for a database of institutions, persons, organisations, network, AMCOST delegates, etc.). IRD could complete the list for West Africa, but also for other countries such as Kenya and Ethiopia.
 - (a) It will be send them an extract of the terms of reference: introduction of the NEPAD project, introduction of the specific objective, provisional definition of a centre and criteria, evaluation process and principal criteria, expected schedule. This information does not need to be assimilated with the call for proposals.
 - (b) It will be proposed to institutions/contacts to tell us their interest (or not) and a short description of their potential project (institution, partners, position, means, needs, questions). We will also ask them about their availability to participate in a NEPAD-OST - IRD visit in their region before the end of July.

4) Institutions/contacts will have to send their answers to NEPAD-OST before the 15 May.

Between the 15th and the 30th May, NEPAD-OST and IRD will analyse the responses and specify the terms of reference, set up a schedule for the visits (5, one per region), disseminate the programme and organise the visits.

5) Visits

Purpose. It is not to visit each country or each institution, but to organise 5 general presentations of the project and answer the questions of the institutions/contacts. With this approach it is expected:

- to improve the terms of reference and the ways to support projects,
- to mobilise institutions/contacts for good participation in the call for proposals process
- to ensure wide dissemination of the information, which should be equitable and clear.

Format. NEPAD-OST and IRD will have to design the “format” and content of each visit.

Leading. Visits will be overseen by NEPAD-OST, IRD and two experts of the task Team (the two representatives of the visited region).

Report. NEPAD-OST and IRD will prepare a general report to the AMCOST Bureau and finalise the terms of reference of the call for propositions

Support. Visits will be supported by the subvention allocated by the French Ministry, half and a half respectively by the part managed by IRD and the part managed by NEPAD-OST.

6. **Conclusion**

IRD/P.Sanglier informs the French Embassy in South Africa and the French Ministry in Paris.