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**NEPAD workshop on developing a network of centres of excellence
for water sciences and technology**
Nairobi, 9–12 May 2005

Report of the NEPAD workshop on developing a network of centres of excellence for water sciences and technology

Introduction

1. The New Partnership for Africa's Development (NEPAD) workshop on developing a network of centres of excellence for water sciences and technology was held at the headquarters of the United Nations Environment Programme (UNEP) from 9 to 12 May 2005. The workshop had been organized in response to the realization by African leaders that major problems in the water sector were blocking development in the continent and that there was an urgent need to find solutions to the problems of how to ensure access to drinking water and sanitation for the people of Africa. At its first meeting, the NEPAD Council of Ministers of Science and Technology had recognized the need to meet those challenges and, at its second meeting, it had decided to organize the current workshop, to work in collaboration with the French Institut de recherche pour le développement (Research Institute for Development – IRD) and UNEP, to consider how to develop a network of centres of excellence in science and technology.

2. Accordingly, the workshop had the following objectives: to review global trends in water sciences and the development of water-related technology and to identify specific opportunities for addressing Africa's challenges; to identify leading institutions and programmes dedicated to water science and related innovations; to identify and propose specific areas of scientific research and technological innovation activities or projects that should be developed and implemented collectively by African countries through NEPAD; to propose specific ways to establish a network of centres of excellence focusing on water sciences, with a view to implementing projects and activities; to explore how best NEPAD centres of excellence could draw on academic, public and private sector expertise worldwide, including through networks, exchange programmes and other arrangements; to determine criteria for the selection of centres to form part of the network; to explore funding modalities for the network and the availability of the necessary infrastructure and other resources; and to set in motion the development of a flagship programme for water sciences and innovations.

I. Opening of the session

3. The opening session was chaired by Mr. Bakary Kante, Director of the UNEP Division of Policy Development and Law. The workshop was opened by Mr. Peter Acquah, Deputy Director, Regional Office for Africa, on behalf of Mr. Klaus Töpfer, Executive Director of UNEP, at 10 a.m. on Monday, 9 May 2005.

4. At the opening session, statements were made by the following: Mr. John Mugabe, Executive Secretary, NEPAD; Mr. Jacques Boulegue, Institut de recherche pour le développement (Research

Institute for Development – IRD) (France); Mr. Emmanuel Naah, on behalf of Mr. Koïchiro Matsuura, Director of the United Nations Educational, Scientific and Cultural Organization (UNESCO); Mr. Hubert Fournier, Ambassador of France to Kenya; and Mr. Acquah, on behalf of the UNEP Executive Director.

5. In his opening statement, Mr. Mugabe welcomed experts to the workshop. He emphasized the importance of international partnership and expressed gratitude to the Government of France for providing financial support for the workshop and to UNEP and UNESCO for hosting the workshop and for the good preparations that had been made.

6. In his statement, Mr. Boulegue pointed out that access to drinking water and sanitation networks was a key objective of the international community and, accordingly, a priority of the French research community. He noted that enormous progress was still needed in order to achieve that goal and that the area of greatest need was Africa. It was therefore not surprising that African countries had placed water at the top of the priorities of NEPAD. The dynamics of human-caused climate change rendered those objectives particularly crucial in northern and southern Africa because it was there, in the tropical and Mediterranean zones, that the gradient of expected climate change was greatest. He stressed the need for a critical examination of the current role of research in attaining the goal of improved access to water and its post-use treatment: it was up to the experts to propose measures that would make it possible to meet the objectives set by the international community.

7. Reviewing action on research on water and sanitation undertaken within the framework of public development assistance, which was mainly carried out by three French bodies –IRD, the Centre international de recherche agronomique pour le développement (Agricultural Research Centre for International Development – CIRAD) and the Ministry of Foreign Affairs – he said that the budgets of the three bodies amounted to \$75 million. He noted that, pursuant to the Millennium Development Goals, all French research organizations should commit themselves to doubling their budgets over the next few years but warned that, even if that goal was achieved, the expected improvements would lead to only half of the objectives that had been set for improvement in people's lives. It was, therefore, necessary not only to double the overall budget, but also to increase the effectiveness and the impact of the research actions.

8. In his statement, Mr. Fournier pointed out that France attached a great deal of importance to Africa. He noted that the President of France, Mr. Jacques Chirac, believed that globalization should concern the whole of the planet and not sideline the continent of Africa. The president seized every opportunity to plead for the development of Africa, particularly during the meetings of the Group of Eight. Accordingly, at the group's meeting in Evian in 2003, France, which had welcomed with great interest and hope the launching of NEPAD, had published a paper entitled "France, NEPAD's partner – Action Plan for Africa". France supported the approach of NEPAD and took it into consideration in determining its cooperation policy.

9. He observed that science and technology had been listed among the priority concerns of NEPAD, with an innovative approach and the choice of 12 thematic areas that included water. Research and expertise should not be the monopoly of the countries of the North. France was closely involved in the water sector and the country's investments in research within the framework of development aid was estimated at \$75 million per year. The French Development Agency played an important role in the financing of the infrastructures of developing countries. France had expertise that was generally recognized in the areas of research, technology and management of the water sector.

10. Mr. Naah, speaking on behalf of the Director of UNESCO, expressed his gratitude to UNEP, the NEPAD secretariat and IRD for co-organizing the workshop. He said that the year 2005 would be of great significance for Africa because, as the world reviewed its progress with regard to the commitments expressed in the Millennium Development Goals, Africa would be setting in motion its attempts to halve poverty by the year 2015. He said that the world was developing a new perspective of Africa's partnerships and that the concern of scientists and water professionals regarding access, production and management of water was at last receiving long overdue attention.

11. He noted that UNESCO was fulfilling its mandate in prioritizing water as part of its science programme and in co-organizing the workshop and stressed that the key strategy for meeting the objectives of the workshop resided in networking. The dedication of UNESCO had been demonstrated by the formation of a major international resource in the form of the UNESCO Institute for

Infrastructural, Hydraulic and Environmental Engineering (UNESCO IHE), whose mandate was to strengthen and mobilize global education and knowledge base for integrated water resources management and contribute towards meeting the water-related capacity-building needs of developing countries and countries with economies in transition. The agency had also developed the system of UNESCO Chairs in the water sector as well as a global consultative process that had led to the drawing up of the World Water Vision. It was also playing an important coordinating role within the United Nations system, in particular with regard to the preparation of the World Water Assessment Programme and the World Water Development Report.

12. In his statement, delivered by Mr. Acquah, Mr. Töpfer pointed out that the UNEP Governing Council/Global Ministerial Environmental Forum had recognized that the very future of humankind was at risk and that there was a need to revitalize its approaches, to propose ways of organizing international cooperation more effectively, focusing on water, sanitation and human settlements. That recognition had led to the adoption of the Bali Strategic Plan for Technical Support and Capacity-Building for developing countries and countries with economies in transition.

13. He said that UNEP had responded to Africa's environmental crisis in 1985 by catalysing the establishment of the African Ministerial Conference on Environment (AMCEN), which had adopted machinery for action to organize regional cooperation effectively. He lamented the fact that, despite the proclamation in the 1972 Stockholm Declaration on the Human Environment of the fundamental right to adequate conditions of life in an environment of a quality that permitted a life of dignity and well-being, more than 30 million people living in Africa still lacked access to safe water.

14. He stated his gratification that the workshop would be discussing the central role of African science and technology centres since fostering such centres had always been central to the work of UNEP. UNEP believed that States should jointly seek approaches based on systems analysis that combined deep understanding of rational systems and the use of modern science and technology to determine the limits and future development of resources, the appropriate technological packages, the implied social acceptability to changes and the possibilities for tackling new social inequalities resulting from the development of systems.

II. Attendance

15. The workshop was attended by 81 experts. A full list of participants, with contact details, may be found in the annex to the present report.

III. Introductory presentations

16. Mr. Michel Hoepffner, of the NEPAD Science and Technology Forum, outlined the background to the workshop and reviewed the objectives set before it, as enumerated in paragraph 1 above. He pointed out that the objectives as spelt out in the documentation that had been distributed before the meeting were not exhaustive, and neither were the criteria that he had listed for the selection of centres of excellence: they were intended to guide deliberations and could be expanded upon by experts. He stressed that the primary aim of the workshop was to come up with specific proposals on the way forward.

17. In the ensuing discussion, attention was drawn to the need to maintain the integrated nature of dealing with water issues – an approach that might be undermined by undue separation of the issues into distinct components. It was also stressed that the fundamental goal of the centres was to find solutions to the region-wide problem of ensuring access to safe drinking water and to adequate sanitation – a challenge that had been recognized by the Commission on Sustainable Development at its recently concluded thirteenth session, and to that end the centres must remain mindful of the linkage between water and sanitation. Attention was also drawn to the important social science aspects of the nexus of water problems: consideration must be given to economic issues, to the source and sustainability of water resources.

18. In response to those observations, Mr. Hoepffner agreed on the need for an integrated approach but pointed out that research in water issues was being undertaken in a number of different areas and it was necessary for the workshop to explore those different directions. He suggested, as the best means

of moving forward, that the groups submit progress reports and the workshop would then review how to continue its work in the light of those reports.

19. Following that discussion, the workshop proceeded to hear four presentations, on the topics of water quality and treatment; water resources; water management; and university and technical training, to guide experts in their further deliberations.

A. Presentation on water quality and treatment

20. Mr. Samuel Elmaleh, of Montpellier University, said that he was speaking in his capacity as a public servant, rather than as a scientist, and in that capacity was able to provide a different perspective on the issue of water and treatment. Discussions on water quality and treatment tended to focus principally on capacity-building and the technicalities of sanitation but did not address the important issue of what might be termed “technology awareness”. He recommended that the current workshop should endeavour to identify centres in Africa that had the potential to become excellent, and that training should be provided for specialists, including through doctoral programmes. PhD candidates would train for one year in France and three years in Africa. He also recommended the creation of hubs which would provide a strong foundation for capacity-building. In that context, he recalled that France had recently entered into a joint venture with South Africa to create a network between both countries in at least three fields, one of which was sanitation. Noting that one of the coordinators of that new venture was taking part in the current workshop, he recommended that any further discussion on the issue of water waste would benefit from his expertise in that area.

B. Presentation on water use and management

21. Mr. Frits Penning de Veris and Mr. Doug Merrey of the International Water Management Institute gave a presentation entitled “Realizing the potential of water in Africa: how centres of excellence can help”. They pointed out that centres of excellence should be guided in their work by existing challenges and noted the following three products that were expected from those centres: knowledge and technology; trained and skilled scientists; and employment for graduates.

22. They highlighted challenges in which water and management of water offered part of the solution. Those included: water and food security for the poorest households; water and productive livestock and fisheries; water and food security at the national level; allocation of water to agriculture, domestic and industrial uses; stronger connections with the use and production of energy; climate and water harvesting; domestic and waste water management in cities; health and reduced mortality through sanitation and hygiene; water management for and by enterprises; avoidance of water-related conflicts; sustainable natural environment; and sustainable resource management in coastal zones and lakes.

23. They listed, among others, the following trends in water sciences: multi-disciplinary approach; participatory and action-based research; innovation systemic approach to science and technology; quantification; promotion of best practices; and globalization. Those trends were also applicable to the water challenges. Thus, the challenge on water and household food security required contributions from the following disciplines: life sciences (agronomy, irrigation); medical sciences (nutrition); engineering (pumps); hydrology (sustainable sources); meteorology (forecasts); economics (prices of water services); sociology (equity); and law (rights and access to water and land).

24. They stressed that, from a scientific viewpoint, all challenges were highly multidisciplinary, hence centres of excellence must be really multidisciplinary and well integrated. Special skills required by the centres of excellence were research management and technology transfer and the products expected of centres of excellence were solutions to challenges, educated and skilled scientists, and employment in industry and government. The centres of excellence would provide employment because they would have excellent conditions for productive work, they would have alliances with regional and international organizations and networks and they would serve as a sabbatical system for professionals to build networks and stay up-to-date. Employment through the centres would halt the brain drain through the following: creating and filling new positions through research on topics that the private sector or government organizations had identified and sponsored; the innovation system approach; the invitation of scientists from the diaspora to join research efforts.

25. They pointed out that targeting water resources required a multi-disciplinary approach, systemic innovation and excellence in science and management, which, in combination, should deliver solutions and knowledge and technology, and develop new capacity that would remain in Africa.

26. In the ensuing discussion, it was noted that water was so crucial that in the next century, there would be more conflicts over water than over oil. With regard to the criteria to be used for promoting centres of excellence, it was pointed out that, although academic excellence, which was very difficult to assess, was important, there should be other criteria. A multi-disciplinary basis, for example, was an important prerequisite. It was also observed that centres of excellence should differ from the existing centres of excellence, particularly with regard to water resources. There should be strong links between centres and the new centres should work closely with the existing centres. The centres should set standards and provide guidelines for policy and decision makers so as to respond to social needs. A large proportion of the resources of the centres should be devoted to the solution of practical problems. It was noted that many African countries were not ready to absorb high-quality scientists and that scientists should be encouraged to work for the countries that sponsored them for training.

27. It was also pointed out that centres of excellence constituted hubs where people with all kinds of expertise could come together and adopt a people-centred approach to water management. They should, for example, involve farmers. They should serve as integrating centres. It was noted that centres of excellence could vary from one country to another and that they should receive input from regional economic integration organizations.

28. It was generally agreed that centres of excellence should be planned in such a way that they would not be short-lived. They would be differ from country to country and would be based on different mandates. At the centres of excellence, there would be integration of information from different sources and they would be expected to conduct serious research. It was also maintained that some existing institutions could qualify immediately as centres of excellence. In addition, it was suggested that the centres of excellence should consider flood forecasting.

29. The Chair suggested that the centres of excellence would require about 10 years to be established and to produce results.

C. Presentation on scientific and technical capacity-building: university courses and training, including on resource management

30. Mr. Jean Abergel, Deputy Manager, IRD, gave a presentation entitled “Scientific and technical training and NEPAD centres of excellence in water sciences and technologies”. He pointed out that during undergraduate studies, water sciences and techniques were taught in the following degree courses: agriculture; civil engineering; rural engineering; fluid mechanics; meteorology; geography; and geology. In all those degree courses water sciences and techniques were taught as secondary subjects and considered as a source of information for a more fundamental discipline (agriculture, civil engineering, etc.). In geography and geology, the water cycle was always tackled in a descriptive manner and students did not learn to quantify the hydrological parameters. Water was a complex topic, however, that was related to many disciplines and necessitated very diverse skills – from hydraulics to sociology, from environmental or health sciences to economics or business management.

31. He noted the diverse types of training and diplomas issued by the various institutions where water sciences were taught. While universities offered theoretical courses at various levels, schools and colleges had a more applied approach: as a result, students had difficulty moving from one system to the other. In the same system, following courses in different institutions was not easy. For Africa, which needed to realize economies of scale, lack of harmonization between the courses offered and the difficulty of ascertaining the equivalence of the diplomas of one institution vis-à-vis another posed serious obstacles.

32. He pointed out that the large increase in the water needs caused by the recent development of countries, their high population growth and irrigated agriculture had led to new challenges regarding the sharing of the resource and its common use and its environmental protection. Waterworks associated with land development could no longer have as their exclusive purpose the mobilization of water resources to satisfy ever-increasing needs. They must increasingly take new factors into account and face up to new challenges. One of those challenges was the need to develop and maintain

infrastructure for the production and distribution of drinking water and for sanitation in cities and in rural areas. The World Water Forum estimated that about 2 billion human beings had no access to water of sufficiently good quality. In Africa, 19 countries had been identified by UNEP as being among those most affected by lack of sanitation in the world.

33. Water-related conflicts could be prevented through sharing of water based on ethical regulation including human rights, poverty eradication and gender equality. There were enormous opportunities for cooperation and partnership on water in Africa. Food security could be improved through many technologies based on rainwater harvesting or management of run-offs. Most of those technologies had been known since time immemorial at one place or another on the continent. There was a need to improve irrigation and drainage techniques in order economize water. The improvement of irrigation should go hand in hand with the improvement of plants for better resistance to drought and to salt. There was also a need to maintain the quality and fertility of soils by fighting against soil erosion and salination and by managing chemical fertilizers.

34. He stressed that water management could only be carried out on the basis of multidisciplinary approaches. It should have a strong human dimension and never be separated from the environmental and social context. The ecosystem approach to finding solutions to the complex and multifaceted problems of water management was preferable to the discipline-based approach. Accordingly, university courses on water should establish programmes in partnership with environmental sciences, economics and social sciences.

35. Drawing attention to new water infrastructures that were becoming increasingly widespread, such as deep boreholes or very long pipelines, he pointed out that these systems raised questions of ethics and accountability for which the water engineers of tomorrow should assume responsibility. The public should be informed of projects, their environmental impacts and the underlying risks in all their phases – study, design, implementation and management. Choices were possible between different projects and the criterion of profitability in either the short or the long term was no longer sufficient. Water management professionals should be trained to assess risks and to explain them to the various stakeholders of the project. They should also be trained to accept the reluctance of stakeholders and to be able to negotiate.

36. He remarked that the rapid increase in the number and complexity of water problems, particularly in Africa, demonstrated an enormous need for innovation in the planning, implementation and management of water development. Training was linked to research because new ideas and innovations were examined and tested by the researchers but implemented and popularized through education.

37. he also pointed out that, by basing itself on the institutions already in place and by promoting networks and collaborations aimed at regional cooperation and integration, NEPAD would help in the training of new technicians, researchers and engineers capable of tackling water problems in Africa. NEPAD should also promote exchanges with universities and teaching institutions in Europe and North America. The following were the classic tools for those exchanges: scholarships for students who wanted to follow courses in different countries in Africa or even outside the continent; mobility grants for teachers and researchers; and facilitating the reception of visiting lecturers and researchers in Africa.

38. Responding to a concern raised by one of the experts that the curriculum on which training was based was from an old system which was one-dimensional and did not take into account the current need to make water engineering training multidisciplinary in nature, a representative of NEPAD agreed that there was a need for a new curriculum.

39. One expert noted that the best science students opted for the more lucrative discipline of information technology, leaving water engineering in the hands of second-generation engineers or those whose grades barred them from studying information technology. Another expert noted that Africa was underdeveloped because of inadequate research. That problem, he explained, had been brought about by poor funding of research institutions by the private sector. He wondered how those institutions, especially those at the international level, could be convinced to fund African research institutions. Yet another expert said that wars and other politically destabilizing events had made it difficult for some regions and countries to develop their capacities.

40. In view of the complexity of the issues surrounding the setting up of centres of excellence, one expert suggested the setting up of consortiums of laboratories acting as poles of expertise that would feed into the centres of excellence.

D. Presentation on water resources

41. Mr. Abou Amani of the Regional Training Centre for Agrometeorology and Operational Hydrology and their Applications (AGRHYMET) of the Permanent Inter-State Committee on Drought Control in the Sahel (CILSS) gave a presentation on water resources in Africa. He noted that, in order to improve food security, there was a need for adequate management of water resources so as to feed a population of over 300 million. It was regrettable that the resources mobilized for that purpose in Africa were less than those of any other continent and should be noted that the effect of the implementation of the Millennium Development Goals must be seen from various angles: improving the knowledge base on water, meeting the basic needs of the population, protecting ecosystems, dealing with risks, ensuring good water management and protecting water resources. He emphasized the need to monitor the resource to ensure its availability and to develop warning systems that would take water variability into account and alert people to impending crises. Adducing the example of Lake Chad, he said that some wetlands had completely disappeared or had been reduced dramatically. Climatic variability also needed to be monitored as it had a marked impact on the availability of water resources. He also cited other areas where the reduction of vegetation cover had affected water levels and stressed the need to integrate all those aspects into water management strategies. The strategies could be effected by a network-based and up-to-date monitoring system, better management of water resources and an improvement of the quality of data and their use. To that end, there was also a need to train qualified staff. In conclusion, he suggested that in view of the facts he had outlined, it would not be wise to develop a centre of excellence on water basins.

IV. High-level roundtable of ministers and senior officials

42. The 10th plenary session, which took place on the morning of 12 May 2005, took the form of a roundtable of ministers and senior officials. It was attended by ministers responsible for water or their representatives of France, Ghana, Kenya, Nigeria and Uganda, as well as the experts.

A. Opening statements

43. Mr. Khroda, speaking on behalf of Ms. Martha Karua, Minister of Water Resources Development and Irrigation, Kenya, who had been scheduled to open the roundtable but had been unable to attend the roundtable due to unforeseen circumstances, presented her apologies. He welcomed the participants to Kenya. He commended the participants for having come together to exchange views on the issue of water in view of the fact that it played a pivotal role in development, particularly in Africa where the resource was scarce. He observed that given that some water resources in the African region were transboundary, it was prudent to discuss an issue could promote peace in the region.

44. He noted that there was a need to enhance cooperation in the African region and to promote international partnerships with international organizations such as the World Bank. He lamented the fact that although much had been said regarding science and technology in Africa, very little had been done and Africa had not developed a clear vision for the benefit of the people. He said that Africa had many scientists but the activities of the scientists were not coordinated.

45. Mr. Ntale, speaking on behalf of Ms. Maria Mutagamba, Minister of State for Water, Uganda, and President of the African Ministers' Council on Water, presented the apologies of the President of the African Ministers' Council on Water, who, he said, was very interested in the proceedings of the workshop. He expressed gratitude to the organizers of the workshop and the Government of France for having given financial assistance to NEPAD for the organization of the workshop. He pointed out that the African Ministers' Council on water was cognizant of the role that the Government of France was playing in supporting the initiatives of the African Ministers' Council on Water. He also commended the European Union Water Initiative on Transboundary Water Management, which had identified five river basins to be developed. He pointed out that the French Water Academy had officially informed the African Ministers' Council on Water of its intention to facilitate the efforts of the Council to review the state of water resources in Africa.

46. He said that the theme of the workshop was very much in line with the agenda of the African Ministers' Council on Water. He noted that one of the goals of the African Ministers' Council on Water was to improve the knowledge base on water, adding that science and technology would have to be adapted to Africa's conditions in order for it to help Africa to achieve the Millennium Development Goals. He noted that it had been observed that programmes with a gender consideration had a better chance of success. Accordingly, it was imperative to integrate gender in any water-related programmes of NEPAD. It was also crucial to involve the private sector in such programmes. He pointed out that integrated water management was crucial for the success of water management programmes. He concluded by observing that hardly any Millennium Development Goals had been achieved in Africa and appealed to African countries to be more proactive.

47. Mr. M. S. Shagari, Minister of Water Resources of Nigeria, pointed out that Nigeria advocated an integrated approach to science and technological development and application. The country encouraged the involvement of the private sector in water management. He noted that Nigeria had been working to strengthen the linkages between the Ministry of Water Resources and universities and polytechnics offering training in water resources up to doctorate level as well as the private sector in order to ensure that training and research focused on contemporary national issues. To complement capacity-building at institutions of higher learning, the country operated a national training network for water resources through its National Water Resources Institute at Kaduna. The institute also provided outreach training and research to some of the countries of the Economic Community of West African States. He noted that the commitment of African countries backed by actions would be the main ingredient of success, adding that there was a need to avoid

48. Ms. Cecilia Dapaah, Deputy Minister of Works and Housing of Ghana, expressed gratitude for the warm reception and explained that her Ministry was soon to be renamed the Ministry of Water, Works, and Housing. Noting that no mention had been made with regard to geographical disparities in the report of the workshop, she wished to point out the differences between the coastal areas and the savannah. Water resources in northern Ghana were not plentiful and the available resources contained a high level of fluoride. In that regard, Ghana had received aid from the European Union as part of the water basin project. She felt encouraged by the array of experts present at this round table discussion and by the workshops' report for the implementation of centres of excellence which would benefit the people of Ghana.

49. In his statement, the Ambassador of France to Kenya, Mr. Fournier, said that the French Government attached great importance to Africa and had willingly supported the NEPAD initiative from the onset. The French Development Agency played an important role in the financing of the infrastructures of third world countries. The commitment manifested by the President of France Mr. Jacques Chirac, including at the G8 meeting, to the development of Africa and ensuring that it was not sidelined by globalization, as well as through partnerships in Africa including by sharing their expertise in research, technology and management of the water sector. He made special reference to the Water and Sanitation meeting held in April, which had been organised as a result of this partnership.

50. Noting the primary focus to science and technology by NEPAD and the need to forward proposals to be submitted to the Ministers of Science and Technology meeting to be held in September 2005, he commended on the success of the meeting adding that it had brought in knowledge and new dynamics that needed to be transformed into concrete action.

51. Mr. Kanté, speaking on behalf of Mr. Klaus Töpfer, Executive Director, of UNEP, welcomed the participants to Nairobi. He noted that UNEP was proud of having supported the establishment of NEPAD. He said that technical science and technology networks were very important for the development of the African continent and noted that water was vital for development. He emphasized that UNEP was committed to the cause of NEPAD. He commended the Government of France for the role it had played and for its generosity in the process of establishment of centres of excellence.

52. In his statement, Mr. Belegue said that French research and higher education institutions, through the Research Institute for Development (IRD), were determined to work with NEPAD in the process of creation of a network of centres of excellence in water sciences and techniques. The preparatory documents provided by NEPAD showed that know-how and work in partnership between African and French institutions was already present in the five subregions of Africa. It was also evident that African countries were opening up to European and other countries. He cited the example

of the Interstate School of Rural Engineers and Facilities (EIER) in Ouagadougou, the Volta-Hyco network and the experience of the African Monsoon Multidisciplinary Analyses. He said that the African Molecular Marker Applications Network of African scientists had been established with nearly 200 participants and observed that the large number of participants indicated the ability of African scientists to build responses of scientific excellence and good governance to the challenges of understanding of climatic processes and their impact on society.

53. He pointed out that two points needed to be respected. Firstly, it was necessary to respect what already existed. It was a matter of recognizing and classifying the know-how and the quality of a few centres already integrated into the flow of research. Secondly, it was necessary to think about the future. There was a need to make the authorities and decision makers aware of their responsibilities vis-à-vis future projects and their initial financing. It was also a matter of knowing how to integrate the African network of centres of excellence into the processes of acquisition and dissemination of knowledge. Analysis of what already existed showed that there was great hope of success, but that a great deal remained to be built. The political will of NEPAD, the scientific, technical and academic know-how of African scientists and the expression of rules of good governance, acceptable by the partners of the North and of the South, were and would be the best guarantees that hope would translate into success.

54. Mr. Naah, speaking on behalf of the Director General of UNESCO, Mr. Koichiro Matsuura, conveyed the organizations pleasure to be in partnership with UNEP, NEPAD, IRD and an active member of African Ministers' Council on Water. He was encouraged by the initiative to develop networks of centres of excellence on water sciences and technology in Africa.

55. He affirmed that the sharing of knowledge was the foundation for collaborative action. He recommended a holistic approach to successfully implement the goals to address Africa's water crisis and a greater commitment towards achieving these results. He was pleased, thus far, with the extent to which Africa's governments called had created a platform for dialogue in the area of water resources management.

56. In conclusion he said that the proposed networks were the cornerstones of this strategy and would change the way we look at water in Africa.

B. Key issues in the outcomes of the workshop

57. Mr. Mugabe expressed gratitude to the Government of France for the financial and technical support it had extended to NEPAD and to UNEP and UNESCO for having contributed to the organization of the workshop. He stressed that there was a need for African countries to use the existing science and technology to address water problems. He noted that the Millennium Development Goals stressed the need to use science and technology to ensure that people had access to safe drinking water.

58. He introduced the recommendations made by the experts attending the experts' workshop on developing a network of centres of excellence in water sciences and technology and invited the ministers and senior officials to comment on them and propose any changes they considered necessary.

59. Many of the amendments were editorial and were forwarded to the secretariat for inclusion in the document. Others involved developing substantive ideas on the presentations as outlined in the following paragraphs

60. On the matter of financial mobilization, a number of participants noted that the issue of financial partnerships should not be limited to certain countries but that the proposal should clearly indicate that other donors would be free to assist. The French Government was commended for its substantive and pivotal financial and technical support to NEPAD and to the process of establishment of networks of Centres of excellence. Appreciation was also expressed to the Government of Germany, which had committed itself to assisting Africa in technical management and was two years into the funding. One participant mentioned that the Department for International Development (DFID) had, during the course of the workshop committed itself to giving financial support towards the establishment of centres of excellence. A participant noted that in the past Centres of Excellence had been established, but had ceased to exist due to insufficient funding. The Chair requested that proposals for funding be

ready by December 2005 in time for the Commission to Africa meeting that primarily looked into financing African projects. One participant reiterated from the recommendations that a special trust fund be established in the Africa Water Facility and that this be a mechanism of Finance mobilisation.

61. Regarding the issue of Partnerships, a number of participants noted that the idea of partnerships would be more cost effective for Africa. There needed to be regional balance in the selection of the centres to strengthen the quality of science and technology within these regions.

62. With reference to the issue of the Team of experts, a number of participants said that their selection should be given priority. This team should reflect diversity. A number of representatives suggested that it would be important to have guidelines for the team of experts to follow in the creation of criteria for the establishment of the network of Centres of Excellence. One participant felt that the selection of members of that team could be a long drawn-out exercise and urged participants to entrust the process to the NEPAD secretariat in order to speed it up.

63. On the matter of the adoption of the process, a number of participants were of the view that the recommendations did not clearly consider a time frame for the adoption of the process.. In response to this, the Chair said that there was a need to consider the sources of finance and the adoption of the process by the African Ministers' Council on Water and the African Ministers of Science and Technology, before issues of time could be considered.

64. In emphasis of the matter of political recognition, one representative appreciated its onset as a mode of creating a momentum by Governments to participate in the establishment of science and technology networks and centres of excellence in Africa.

65. The meeting adopted the chair's recommendation. Suggestions will be submitted to the African Ministers' Council on Water and experts of science and technology for consideration.

V. Closure of the session

66. The Chair reviewed the outcome of the discussion in the round table and said that the draft recommendations would be amended to take into account the views expanded by Ministers and their representatives and the final version would be submitted to Mr. Eric Odada for dissemination.

67. He asked participants to provide further comments and observation of the third version of the recommendations that had been distributed at the meeting. One representative drafted two new paragraphs to replace paragraphs 3 to 7. These were agreed upon by the participants and transmitted to Mr. John Mugabe for inclusion into the draft. One participant brought the workshop's attention to the fact that recommendations for amendment to the document from pages 3 to 6 had not been included. The Chair asked that those be clearly written out and submitted to the secretariat for its attention.

68. One representative commented that the document on recommendation did not reflect a timetable and cautioned that without such a schedule, the project ran the risk of going off course. Accordingly he recommended that a timetable be annexed to the document.

69. Following the customary exchange of courtesies, the chair declared the meeting closed at 3.30 p.m. on Thursday, 12 May 2005.

Annex

NEPAD workshop on developing a network of centres of excellence for water sciences and technology

Nairobi, 9–12 May 2005

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