



African Ministers' Council on Water

Outcomes and Recommendations
of the Pan-African Implementation and
Partnership Conference on Water (PANAFCON)
Addis Ababa December 8-13 2003

UN-Water/Africa Secretariat

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Foreword

A clear consensus has emerged in the last few years on the key water management policy challenges and priorities in Africa and especially on “the need for more integrated approaches, stronger partnerships and a more effective focus on poverty reduction and sustainable development in water policy processes” (WWDR, 2003, 21). What is now needed is an equally clear consensus on how to tackle those water policy priorities and targets immediately and effectively.

“Meeting basic needs” is the critical starting point for implementation of the two specific targets for water and sanitation set in the Millennium Declaration and the WSSD Plan of Implementation:

- To halve by 2015 the proportion of people who are unable to reach or to afford safe drinking water
- To reduce by 2015 by one-half the proportion of people without access to hygienic sanitation facilities

A major problem in development is that those who give advice and make decisions seldom have to live with the consequences. But the poor majority of people do. Similarly, a major problem with international targets is that they are too often set far enough in the future that those setting them get credit for doing so without later being held accountable when they are not met. For example, what progress has actually been made on achieving the Millennium Development Goal on water, which was set nearly three years ago?

That brings to mind the story of an elderly farmer who asked his foreman to plant some trees along the eroded banks of a river running through the farm. The foreman objected, saying that the task would not help as “the trees won’t mature for at least fifteen years”. The farmer wisely replied: “In that case we have no time to lose; so plant them this afternoon”. The same sense of perspective and urgency applies to the new water and sanitation targets. Except in this case it is the health, livelihoods and lives of 1-2 billion people that are being eroded and lost. That is why the planning and implementation for meeting those targets must start today. Making that start is what we believe we achieved in Addis Ababa in December 2003 with the Pan African Implementation and Partnership Conference on Water.

Halifa Drammeh, UNEP
Chair of Conference Steering Committee

Preface

The Pan-African Implementation and Partnership Conference (PANAFCON) was the groundbreaking platform where 40 African Ministers of Water and 1000 other stakeholders met to address the implication of the outcomes of the World Summit on Sustainable Development (WSSD) on regional water initiatives, and Africa's role in the implementation of the outcomes of the Summit. PANAFCON provided an opportunity for African countries, the international community and United Nations agencies to reaffirm their commitments to solving Africa's water crisis.

Over the years, many regional and international targets on water were set while numerous promises and commitments were made. Yet the degree of implementation remains abysmal. Consequently, more than 300 million Africans still lack access to safe water and sanitation while most African countries are unlikely to meet the following challenges identified under the Africa Water Vision 2025:

- (a) To halve, by 2015, the proportion of people without sustainable access to safe drinking water and the proportion of people without access to basic sanitation;
- (b) To develop integrated water resource management and water efficiency plans by 2005;
- (c) To increase by 30% water productivity of rainfed agriculture and irrigation by 2015; and
- (d) To increase the size of irrigated area by 50% by 2015.

This document is a compendium of actions, deliberations, commitments and outcomes of the Conference. It is organized in two sections. To give the appropriate context, the first section summarizes Africa's key water challenges, the Africa Water Vision, factors that may affect the attainment of the Vision, a framework for action as well as milestones and targets.

This is immediately followed by a compilation of the outcomes and recommendations of the various thematic groups which deliberated on wide-ranging issues such as Water for African Cities, Water for Food Security, Water and Climate, Financing Water Infrastructure, Ensuring Water Wisdom, Protecting Ecosystems and Livelihoods and Rural Water Supply, Sanitation and Hygiene Education. The section ends with a report of the African Implementation Review Meeting which was submitted to the 12th meeting of the Commission on Sustainable Development (CSD).

It is our hope that this document will be a useful companion to those who seek to match and gauge rhetorics with post-Conference actions in our collective efforts to achieve the Africa Water Vision 2025.

Josué Dioné
Chairman, UN-Water/Africa
Director, Sustainable Development Division

Acknowledgements

The Pan African Implementation and Partnership Conference on Water (PANAFCON) was hosted by the Government of Ethiopia and the United Nations Economic Commission for Africa (UNECA) under the auspices of the African Ministers' Council on Water (AMCOW). It was a pioneering event whose gestation and birth can be attributed to many stakeholders in the African Water Sector and the major Development Partners.

It is practically impossible to fully acknowledge the positive contribution of many individuals and institutions who made PANAFCON a success. Credit goes first to all members of the UN Water/Africa Group who showed that when the UN system chooses “real” instead of “royal” collaboration it can generate synergies with enhanced multiplier effects which go beyond all expectations.

Special thanks must go to the members of the Plenipotentiary Committee co-chaired by K. Y. Amoako, Executive Secretary of UNECA, Shehu Shagari, the Chairman of AMCOW and Minister of Water Resources in Nigeria and Shiferaw Jarso, Co-host and Minister of Water Resources of Ethiopia.

There were so many High Level Guests that it is impossible to name them all. These included Meles Zenawi, Prime Minister of Ethiopia; Willem Alexander, Prince of Orange, who had to abort his travel to Addis Ababa at the last minute due to the birth of his daughter, the future Queen of the Netherlands; 45 African Ministers responsible for water and sanitation; heads of the major development partners such as EU, CIDA, and many more.

We are grateful to all, from suppliers, exhibitors, the diplomatic corps in Addis Ababa, ECA and other Agencies' staff, who volunteered their time to serve on the Conference Organizing Committee, and, most important, the members of the PANAFCON Steering Committee who kept all activities on course.

Stephen Maxwell Kwame Donkor
Coordinator, UN Water/Africa
Chairman, Conference Organizing Committee

Acronyms

AfDB	African Development Bank
AMCOW	African Ministers' Council on Water
CIDA	Canadian International Development Agency
CSD	Commission on Sustainable Development
ECA	Economic Commission for Africa
ECOWAS	Economic Community of West African States
EU	European Union
FAO	United Nations Food and Agriculture Organization
GDP	Gross Domestic Product
GEMS	Global Environment Monitoring System
GFAS	Global Flood Alert System
GIWA	Global International Waters Assessment
GSAF	Global Shelter Assistance Facility
GWP	Global Water Partnership
HA	Habitat Agenda
HIPC	Highly Indebted Poor Countries
IAEA	International Atomic Energy Agency
IFAD	International Fund for Agricultural Development
IFNet	International Flood Network
ISDR	International Strategy for Disaster Reduction
IUCN	The World Conservation Union
IWMI	International Water Management Institute
IWRM	Integrated Water Resources Management
JPOI	Johannesburg Plan of Implementation
MD	Millennium Declaration
NBA	Niger Basin Authority
NBI	Nile Basin Initiative
NEPAD	New Partnership for Africa's Development
NMHS	National Meteorological and Hydrological Services
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation
PANAFCON	Pan-African Implementation and Partnership Conference on Water
RBO	River Basin Organization
RECs	Regional Economic Communities
SADC	Southern African Development Community
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UN-HABITAT	United Nations Human Settlements Programme

UNESCO	United Nations Education, Scientific and Cultural Organization
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children’s Fund
UNISDR	United Nations International Strategy for Disaster Reduction
WHYCOS	World Hydrological Cycle Observing System
WMO	World Meteorological Organization
WRC	Water Resources Commission
WRDP	Water Resources Development Programme
WRMF	Water Resources Management Fund
WSSD	World Summit on Sustainable Development
WSSDP	Water Supply and Sanitation Development Programme
WWAP	World Water Assessment Programme
WWDR	World Water Development Report

Key Water Resource Issues

In the midst of an apparently substantial supply of water at continental level, there are subregions and countries in Africa that are experiencing growing water scarcity. This situation is the result of a number of issues that face the continent in the area of water resources. These issues fall into two broad categories: resource-side and demand-side. The resource-side issues are concerned with the occurrence, distribution, protection and management of available water resources. They also relate to the sustainability of the available resource. The demand-side issues regard the management of competing demands for available water resources. They are concerned with the extent to which such demands are satisfied in an equitable and sustainable way.

Resource-Side Issues

There are many resource-side issues facing Africa. Among these are:

1. Multiplicity of transboundary water basins;
2. High spatial and temporal variability of rainfall;
3. Growing water scarcity;
4. Inadequate institutional and financing arrangements;
5. Inadequate data and human capacity;
6. Inadequate development of water resources; and
7. Depletion of water resources through human actions.

Multiplicity of transboundary water basins. A key water resource issue in Africa is the multiplicity of international water basins in a climate of weak international water laws and weak regional cooperation on water-quality and water-quantity issues. Africa has about one-third of the world's major international water basins (basins >100,000 km²). Virtually all the continental sub-Saharan African countries and Egypt share at least one international water basin. There are about 80 international river and lake basins in Africa. The Nile basin, for instance, has 10 Riparian countries; the Congo has 9, the Niger 9, the Zambezi 8, the Volta 6, and Lake Chad 5. Then there are countries through which several international rivers pass. One extreme case is Guinea, which has 12 such rivers.

Table 1 : Regional Distribution of Rainfall and Water Withdrawals in Africa

Sub-Region	Area Rainfall			Internal Resources (IRR)		Renewable % of rainfall	Withdrawals for Agriculture, Community Water Supply and Industry			
	1000X kn12	km3/yr	mm/yr	km³/yr	Mm/yr		km³/yr.	mm/yr.	% of	% of IRR
Northern	5753	411	71.4	50	8.7	12.2	76.3	13.3	18.6	152.6
Sudano-Sahelian	8591	2878	335.0	170	19.8	5.9	24.1	2.8	0.8	14.1
Gulf of Guinea	2106	2965	1407.9	952	452.0	32.1	6.1	2.9	0.2	0.6
Central	5329	7621	1430.1	1946	365.2	25.5	1.4	0.3	0.02	0.1
Eastern	2916	2364	810.7	259	88.8	11.0	6.5	2.2	0.3	2.5
Islands	591	1005	1700.5	340	575.8	33.8	16.6	28.1	1.7	4.9
Southern	4739	2967	626.1	274	57.8	9.7	18.9	4.0	0.6	6.9
Total	30027	20211	673.1	3991	132.9	19.7	149.9	4.0	0.7	3.8

Source: ECA and FAO, 1995

Water interdependency is accentuated by the fact that high percentages of total flows in downstream countries originate from outside their borders. For example, almost all of the total flow in Egypt originates outside its borders. In Mauritania and Botswana, the corresponding figures are 95 and 94 percent respectively; in the Gambia it is 86 percent; and in the Sudan it is 77 percent. Despite this, few shared waters are jointly managed and in many respects, the issues of water rights and allocation of international waters remain unresolved, and national interests tend to prevail over shared interests.

Since many of Africa's water basins are international, their use as a unit for water resources management is impossible without partnership and cooperation between countries sharing them. In the absence of such cooperation, the potential for conflicts among Riparian countries has increased in recent years and is likely to intensify in the future as water scarcity increases. While national and customary laws exist to deal with conflicts at the local and national levels, existing international principles are not adequate for fully addressing conflicts between countries and among Riparian states.

In the field of international cooperation, the SADC Protocol on Shared Watercourse Systems represents a successful model for what can be achieved if countries cooperate over their shared water resources. Other models for cooperation include the Nile Basin Initiative and a number of river basin authorities such as those of the Niger and Lake Chad. Joint water projects between countries are encouraging examples of positive regional cooperation. These include the Lesotho Highlands Water Project (between Lesotho and South Africa), the Kornati Basin Project (South Africa and Swaziland) and the Aswan High Dam (Egypt and Sudan). The challenge is for immediate action to create an enabling environment for joint management of international water basins to become the norm rather than the exception.

It would appear that partnership should not be limited to countries with shared water basins. It should be extended to cooperation between sub regional groups as well. In the field of water and sanitation, a number of initiatives have been developed, important examples of which are the Water and Sanitation Africa Initiative (WASAI), the WHO 's Africa 2000 Initiative to Expand Water and Sanitation Services in Africa and Water and Sanitation Hygiene (WASH).

High spatial and temporal variability of rainfall. Extreme spatial and temporal variability of climate and rainfall on the continent is one of the significant features of water resources in Africa, with far-reaching consequences for water-resources management. As shown in Table 1, Africa is a continent with great disparities in water availability between subregions. Great disparities also exist within and between countries. While there are areas with plentiful supply of water, there are others where water is scarce. For example, northern and southern Africa receive 9 percent and 12 percent, respectively, of the region's rainfall. In contrast, the Congo River watershed in the central humid zone, with 10 percent of Africa's population, has over 35 percent of its annual runoff. Again, in the humid equatorial zone (in the Gulf of Guinea), annual rainfall is over 1,400 mm and exceeds evaporation. In contrast, in the Sahara and Kalahari deserts, annual rainfall is less than 50 mm, and it is exceeded by evaporation.

In Southern Africa, the Lake Malawi basin, Southern Tanzania, and northern Madagascar have become wetter in the last 30 years. This is in contrast to the situation in Mozambique, southeast Angola and western Zambia, which have become significantly drier over the same period although Mozambique is currently overwhelmed by excessive rainfall and flooding. The extremes in variability have been greater in Tunisia, Algeria, the Nile Basin, and in the extreme south of the continent. Another example of this variability is rainfall in the Sahel region during the period 1961-1990, which was 30 percent lower than it was during the period 1931-1960.

In general, although analysis on a continental scale introduces all sorts of statistical questions, it can be shown in many ways that the African continent has an exceptional disadvantage with regard to water resources. A comparison of the annual average precipitation of the world's continents shows Africa to have a level comparable to Europe and North America. However, the higher evaporation losses that occur on the African continent result in a substantially lower percentage of precipitation contributing to renewable water resources, setting it apart from other continents. Africa's total runoff, which is reflected in its useable and renewable water resources and accounts for 10% of the world's freshwater resources, is thus very low.

In addition to the limited nature of the continent's water resources, the temporal and spatial variability of precipitation, due to the strong influence of the Intertropical Convergence Zone on the climate of Africa, has implications for reliability and management strategies. This variability, which is exacerbated by unpredictability, has great significance for the development of surface water resources and for the large areas of the continent that are underlain by low-storage aquifers, which are dependent on effective levels of annual rainfall.

Growing water scarcity. These variations have resulted in abundant water resources in some areas and endemic and spreading drought and growing scarcity of water in others, especially where low annual rainfall is accompanied by low levels of internal renewable water resources. This has been the case in such dry lands as the Sahelian and some Southern African countries, where there has been a significant decline in rainfall. The frequency of drought has been increasing over the past 30 years, resulting in significant social, economic and environmental costs borne mostly by the poor. Not surprisingly, there are growing constraints to water supply in the dry lands that occupy about 60 percent of the total land area of Africa.

For example, it was reported that in 1995, Algeria, Burundi, Cape Verde, Djibouti, Egypt, Kenya, Libya, Malawi, Rwanda and Tunisia were facing water-scarce conditions (with less than 1000 m³ of renewable water resources per capita per year). Morocco, South Africa, and Somalia, were reported to be facing water-stress conditions (with less than 1,667 m³ /capita/year). It has been estimated that by 2025, the number of countries facing scarcity will increase to 14, and the number facing water stress will rise to 11 (UNEP, 1999). Already, about one-third of the people in the region live in drought-prone areas, and there is one country where one-sixth of the drinking water supply in one city comes from recycled sewage that has been put through very sophisticated treatment processes.

The apparent disappearance of Lake Chad in West Africa is symptomatic of the growing scarcity of water in Africa. Originally believed to have an area of about 350,000 km², the lake was reduced to 25 000 km² in the early 1960s. However, today, it is reduced to about 2,000 km².

While the cause of this apparent shrinkage of the lake is not well understood, it is occurring in the same area where the two complementary processes of desertification and deforestation are combining to push the frontiers of the desert farther south in West Africa.

Inadequate institutional and financing arrangements. A key issue is related to the adequacy of the enabling environment under which water resources are managed at local, national and intercountry levels. Current institutional arrangements are often inadequate and the financing of investments is often unsustainable. There is therefore a need for institutional reform to improve performance in the water sector. Such reform should be underpinned by the adoption of the Dublin Principles. It should also be based on cooperation and partnership between countries and between subregions, with the water basin serving as the basic unit for resource management.

Fortunately, many African countries have risen to the challenges that confront them. In the field of water policy, strategy and institutional arrangements, a number of advances have been made. These include an increased awareness of, and political commitment to, Integrated Water Resources Management (IWRM). There is also an increasing commitment to water-policy reform and a strong trend towards decentralization of water institutions. Furthermore, there is a thrust towards financial sustainability in the water sector and a realization of the importance of treating water as

an economic good, while providing a safety net for the poor.

Inadequate data and human capacity. A key limitation at national, sub regional and continental level is the lack of adequate data on water resources. This limitation is linked to inadequate financial and human capacity for the collection, assessment and dissemination of data on water resources for developing, planning and implementing projects.

The skills for water resources assessment (WRA), which are prerequisite for IWRM, are not widely available in Africa. A massive programme for capacity building is therefore needed to produce a cadre of water professionals (both men and women) who are highly skilled in IWRM principles and practices. Under the Global Water Partnership (GWP), a capacity building associated programme is being developed to provide strategic assistance for developing the necessary skills for IWRM. The challenge is to establish and maintain the necessary network for data collection and to retain staff once they are given the requisite training. It is generally recognized that even if the trained staff are retained, the skills they acquire may become atrophied from lack of use unless appropriate incentives are introduced. Another challenge is how to devise such incentives so that they are consistent with the aspirations of the staff and with the goals of the water sector. These are pressing challenges that call for immediate remedial action.

Inadequate water resources development. The information in Table 1 suggests that scarcity of water in Africa is not due entirely to natural phenomena. It suggests that it is due, in part, to low levels of development and exploitation of water resources even though there is a growing demand for water in response to population growth and economic development. The Table shows that at the continental level, only 3.8 percent of internal renewable resources were being withdrawn for the three major water uses of agriculture, community water supply and industries. Constrained financial resources may be the prime reason for this low level of water resources development.

This determinant of scarcity is likely to increase in significance in the future with growth in economic activities both in the agricultural and in the industrial sectors unless a sustainable source for financing water resources development is introduced. In the Southern African Development Community (SADC) region, for example, water demand is projected to rise by at least 3% annually until 2020, a rate equal to the region's population growth (SADC, IUCN, 1994). As a consequence of demands such as this, it has been estimated that by 2025, up to 16% of Africa's population (230 million) will be living in countries facing water scarcity, and 32% (460 million) in water-stressed countries (Johns Hopkins, 1998). Already, the rising demand for increasingly scarce water in the drier parts of Africa is leading to growing concern about future access to water, especially where water resources are shared by two or more countries. However, this is not an entirely insurmountable problem, given the likely dividends that may be derived from cooperation between countries with shared water basins and between subregions.

Depletion of water resources through human actions. Available resources are being depleted through human-made actions that reduce both their quality and quantity. Water contamination is

increasing across the continent, from industrial pollution, poor sanitation practices, discharge of untreated sewage, solid waste thrown into storm drains, and liquid leached from refuse dumps. A major problem is pollution from food-processing waste and the decaying of invasive aquatic weeds. Poor land use and agricultural practices compound these problems. As a result, concentrations of waste frequently exceed the ability of rivers to assimilate them, and waterborne and water-based diseases have become widespread.

The consequent deterioration of water quality is a significant form of depletion of available water resources. At best, it increases the cost of developing water resources and at worst it increases water scarcity. The consequences of the deterioration of water quality include eutrophication and the proliferation of invasive aquatic plants. Eutrophication is a factor that mainly occurs in lakes. The water hyacinth has already seriously affected most water bodies including Lake Victoria, the Nile and Lake Chivero. Future threats may include pollution from petroleum production and refineries, from agricultural waste such as fertilisers and pesticides, and from small-scale industries dispersed in large urban areas.

Another water-quality problem is salt-water intrusion. This is an issue particularly along the Mediterranean coast and on the oceanic islands such as the Comoros, which are highly dependent on groundwater resources. It is due in part to over-exploitation of groundwater resources.

Demand-side Issues

On the demand side too, Africa faces a number of issues. These include:

1. Lack of access to safe and adequate water supply and sanitation services;
2. Lack of water for food security;
3. Inefficiency and wastage in water use; and
4. Threats to environmental sustainability.

Lack of access to safe and adequate water supply and sanitation services. Access to basic water supply and sanitation services is highly inadequate in Africa. Rural areas in Africa have about 65 percent of the population which do not have access to an adequate supply of water and 73 percent are without access to adequate sanitation. In urban areas, 25 percent and 43 percent do not have access to adequate water and sanitation respectively. In fact, since the Water and Sanitation Decade, progress in coverage has stagnated, and more people are without adequate services today than in 1990.

Due to this situation, almost half of all Africans suffer from one of six main water-related diseases. The worst statistics are for cholera and infant diarrhoea. Out of the 46 countries in which schistosomiasis (or bilharzia) is endemic, 40 are in Africa. Moreover, 16 of the 19 countries reporting Guinea worm disease are in Africa. The poor access figures are likely to be compounded by the fact that population growth, at 3 percent per annum, is the world's highest. Hence, from 1997 to 2025, the population is expected to

almost double, from 778.5 million to 1.453 billion (United Nations Population Division, 1996). Africa also experiences the world's most rapid rate of urbanisation, at 5 percent per annum.

However, it would appear that the inadequate access to basic water supply and sanitation services is not rooted in the inadequacy of available water resources. The root cause appears to be financial and technological. Hence, the poor performance of economic development in Africa should be expected to pose a challenge to financing sustainable expansion of access to safe and adequate water and sanitation services for all, especially the poor, in the shortest possible time.

Lack of water for food security. During the past three decades, agricultural production has increased at an average of less than 2% per annum, while population has risen at about 3%. Under current demand and supply trends, cereal imports are expected to rise from the current 10 million mt per annum to 30 million mt in 25 years. Much of this can be explained by the fact that about one-third of the people in the region live in drought-prone areas.

In much of West Africa, average food supply (2,430 kcal/day/person) is below what is regarded as the optimum level of 2,700 kcal/day/person. In East and Southern Africa, the number of people affected by food insecurity has almost doubled, rising from 22 million in the early 1980s to 39 million in the early 1990s. It has been estimated that a 33-percent increase in agricultural output per annum is needed to achieve food security for the continent. Worse still, scenarios suggest that if the area under irrigation were to grow by a factor of three to over 16 million hectares, this would only represent a 5-percent contribution to the threefold food production increase needed by 2025.

Finally, it is worth noting that despite the high levels of food insecurity in the region, most countries have substantial underutilized potential for irrigation expansion (about 45 million hectares, according to an FAO estimate). In fact, two-thirds of African countries have developed less than 20% of their potential. On the entire continent about 6% of the cultivated area is irrigated. The three countries with the most irrigation potential have each developed less than 10% of their potential irrigated area. The scope for expanding irrigation is, therefore, considerable. However, it is apparent that there is an even greater scope for expansion of rainfed agriculture if agriculture is to make the necessary contribution to Africa's socio-economic development.

Ninety-five percent of the total energy consumption is supplied by coal-based power plants while only 4% is covered by hydropower (World Bank, 1996). The hydropower potential of the region is estimated to be about 1.4 million GWh, of which less than 3% is utilized. Small-scale hydropower potential for supplying rural areas with energy is hardly exploited.

It is recognized that ensuring food and energy security calls for a range of actions involving socioeconomic development policies. However, water can be a limiting factor in the success of such measures. The challenge is, therefore, how to develop Africa's water resources so that water does not become the limiting factor in the expansion and increased productivity of both rainfed

and irrigation-based agriculture to ensure food security and economic development.

Inefficiency and wastage in water use. Given its current economic situation, Africa cannot afford to spend its constrained resources on producing water that is allowed to go to waste. Yet much water is wasted. For example, the average level of unaccounted-for water is about 50 percent in urban areas, and as much as 70 percent of the water used for irrigation is lost and not used by plants.

These high levels of water wastage may be attributed to the existence of perverse incentives or to the use of inefficient technologies. In the case of water supply, a major contributory factor is the neglected maintenance of installed equipment. In fact, in many African countries, limited resources borrowed for water supply go towards rehabilitating installed facilities instead of expanding services. This is an indirect way of borrowing for maintenance because rehabilitation has become a form of delayed maintenance of facilities. Apart from being a drain on limited financial resources, this is a major constraint to the expansion of services to the unserved. Incentives and technological improvements are needed to reduce such waste and improve the efficiency of investments in water resources.

Threats to environmental sustainability. The threat to environmental sustainability is due in part to failure to recognize the life-supporting functions of ecosystems (terrestrial and aquatic). In fact, the water quantity and quality requirements of ecosystems are not normally taken into account in the overall allocation of available water resources in much of Africa. Hence the important role played by wetlands in many rural economies (for the provision of highly productive agricultural land, dry season grazing for migrant herds, fish, fuelwood, timber needs, medicines, etc.) has not been recognized and reflected in national water policies. As a result, such wetlands are increasingly being endangered by poor cultivation, deforestation and overgrazing.

As stated earlier, the Dublin Principles explicitly draw attention to the essential role of water not only for development, but also for life and the environment. It is important, therefore, to recognize the legitimate use of water for sustaining the environment, especially the life-supporting functions of ecosystems. This recognition should be reflected in the generation of broad-based support and a legal basis for ensuring that water for maintaining the sustainability of life-supporting ecosystems is adequate in quality and quantity. This may call for separating water resources into three categories, with one part catering to competing demands for economic development, a second part reserved for sustaining the environment, and the third part earmarked for meeting basic needs for sustaining life, as has been done in South Africa.

Compounding Issues

In addition to the key issues identified above, there are a number of compounding issues that also have a significant impact on water resources in Africa. The most significant ones are:

- 1 . Political instability and conflict within and between countries;
2. Weak institutional arrangements and legal frameworks for the ownership, allocation and management of water resources;

3. Inadequate public awareness and stakeholder involvement;
4. Inadequate research for water resources development;
5. Weak socio-economic development and technology base;
6. Low public capacity to finance required investments in the development and management of water resources, including protection and restoration; and
7. Inadequate private sector participation in financing.

The Key Challenges

While the key and compounding issues pose numerous challenges for the water sector in Africa, it is possible to identify 10 key challenges. These are:

1. Ensuring that all have sustainable access to safe and adequate water supply and sanitation services to meet basic needs;
2. Ensuring that water does not become the limiting factor in food security;
3. Ensuring that water for sustaining the environment and life-supporting ecosystems is adequate in quantity and quality;
4. Reforming water resources institutions to establish good governance and an enabling environment for sustainable management of national and transboundary water basins and for securing regional cooperation on water-quantity and water-quality issues;
5. Securing and retaining skilled and motivated water professionals;
6. Developing effective systems and capacity for research and development in water;
7. Developing effective systems for collection, assessment and dissemination of data and information on water resources.
8. Developing effective and reliable strategies for coping with climate variability and change, growing water scarcity, and the disappearance of water bodies;
9. Reversing growing impact of human activities on water-quantity and quality problems, such as over-exploitation of renewable and non-renewable water resources, and the pollution and degradation of watersheds and ecosystems;
10. Achieving sustainable financing for investments in water supply, sanitation, irrigation, hydropower and other uses, and for the development, protection and restoration of national and transboundary water resources; and
11. Mobilizing political will, creating awareness and securing commitment among all with regard to water issues, including appropriate gender and youth involvement.

The Water Vision for Africa is designed to address these challenges.

The Africa Water Vision for 2025

From this review of the socio-economic crisis in Africa, the salient features of water resources in the region, and the key challenges facing the development of such resources, it is apparent that business as usual will be woefully inadequate in addressing the water resources problems in Africa. A radical change in approach is required if water is not to become a constraint to, but rather an instrument for, a socio-economic turnaround and development in Africa. Such an approach calls for a new water vision for the continent, buttressed by a flexible framework for action that can respond to progress towards the Vision and to relevant developments within and outside the water sector.

The shared Water Vision for Africa has been defined with this in view. It is a vision of:

AN AFRICA WHERE THERE IS AN EQUITABLE AND SUSTAINABLE USE
AND MANAGEMENT OF WATER RESOURCES FOR POVERTY ALLEVIATION,
SOCIO-ECONOMIC DEVELOPMENT, REGIONAL COOPERATION, AND THE
ENVIRONMENT.

It is a Vision of an Africa where:

1. There is sustainable access to a safe and adequate water supply and sanitation to meet the basic needs of all;
2. Water inputs towards food and energy security are readily available;
3. Water for sustaining ecosystems and biodiversity is adequate in quantity and quality;
4. Water-resources institutions have been reformed to create an enabling environment for effective and integrated management of water in national and transboundary water basins, including management at the lowest appropriate level;
5. Water basins serve as a basis for regional cooperation and development, and are treated as natural assets for all within such basins;
6. There is an adequate number of motivated and highly skilled water professionals;
7. There is an effective and financially sustainable system for data collection, assessment and dissemination for national and transboundary water basins;
8. There are effective and sustainable strategies for addressing natural and human-made problems affecting water resources, including climate variability and change;
9. Water is financed and priced to promote equity, efficiency, and sustainability; and
10. There is political will, public awareness and commitment among all for sustainable management of water resources, including the mainstreaming of gender issues and youth concerns and the use of participatory approaches.

Critical Factors for Achieving The Vision

Many factors will influence attainment of the Vision. Among these are population and demographic trends, lifestyles and consumption patterns, structure and level of economic development, technology development and choice, governance, policies and institutions. The structuring of these factors is what will determine the attainability of the Vision. For example, achieving the Vision will call for slower population growth, sustainable socio-economic development, a new way of thinking about water and a new form of regional cooperation. It will call for a framework for action that is underpinned by partnership and solidarity between countries that share common water basins. In addition, it will call for cooperation between subregional groups on the continent. It will require fundamental changes in policies, strategies and legal frameworks, as well as changes in institutional arrangements and management practices. Above all, it will require adherence to the following critical success factors:

- Openness and transparency in decision-making processes;
- Ability to generate and receive knowledge and information;
- Cooperation and teamwork by all countries in the region to achieve common and mutually beneficial objectives;
- Readiness to take tough decisions on the future direction and course of action consistent with the aspirations in the shared Water Vision; and
- Proper appreciation at all times of “where we are”, “where we want to be”, and “how to get there”.

Framework for Action

The framework for action defines the road map towards the Vision. Table 3 shows the milestones and corresponding targets towards the Vision. The framework for action consists of actions under the following broad categories:

1. Strengthening governance of water resources;
2. Improving water wisdom;
3. Meeting urgent water needs; and
4. Strengthening the financial base for the desired water future.

Strengthening governance of water resources

- Adopting and implementing IWRM principles and policies;
- Developing and implementing institutional reform and capacity-building at local, national and transboundary water basin levels;
- Promoting transparency and participation;
- Adopting the river basin as the unit for water resources management;
- Strengthening river-basin and aquifer management;

- Creating an enabling environment for cooperation between countries sharing international water basins;
- Mainstreaming management at the lowest appropriate level and creating institutional arrangements for full stakeholder participation; and
- Liberalizing water markets while meeting basic needs of the poor.

Improving water wisdom

- Raising awareness on water management issues;
- Establishing a sustainable system for data collection, management, and dissemination, including standardization and harmonization of data;
- Building institutional, technological and human capacity for effective water management;
- Conducting research and development on water resources issues;
- Facilitating access to knowledge and information centers and services such as the Internet; and
- Mainstreaming gender and youth concerns in all activities.

Meeting urgent water needs

- Expanding safe water supply and sanitation services to meet basic human needs;
- Ensuring an adequate supply of water for sustainable food security;
- Ensuring that water for the environment is adequate in quantity and quality;
- Ensuring an adequate supply of water for urban, agricultural, energy, and hydropower production, industry, tourism and transportation development;
- Managing climate variability and change, including drought, desertification, and floods;
- Conserving and restoring ecosystems;
- Protecting watersheds and controlling siltation of hydraulic structures;
- Meeting rural energy needs; and
- Developing non-conventional resources such as desalination and re-use of water.

Strengthening the investment base for the desired water future

- Mainstreaming full-cost recovery and service differentiation while ensuring safety nets for the poor;
- Securing sustainable financing from national and international sources for tackling urgent water needs;
- Securing sustainable financing for institutional reform;
- Securing sustainable financing for information generation and management;
- Promoting and facilitating private sector financing in the water sector; and
- Establishing mechanisms for sustainable financing of water resources management.

Milestones and Targets

The Framework for Action defines what needs to be achieved if Africa is to move from where it is today to where it envisions being by 2025. However, these ends cannot be achieved overnight. The milestones and targets define intermediate goals to be reached at different levels (local, national, subregional and regional) at stated times in progressing towards the goals. Examples of milestones and targets are presented in Table 2. They need to be accompanied by indicators and criteria for monitoring their successful attainment.

Table 2: Milestones and Targets

Actions	Targets	
	2015	2025
Improving Governance of Water Resources		
<ol style="list-style-type: none"> 1. <i>Development of national policies and comprehensive institutional reform.</i> <ul style="list-style-type: none"> • In process of development • Full implementation 	100% of countries	100% of countries
<ol style="list-style-type: none"> 2. <i>Enabling environment for regional cooperation on shared water.</i> <ul style="list-style-type: none"> • Initiated in existing river-basin organizations • Implemented in existing river-basin organizations • Initiated in new river-basin organizations • Implemented in new river-basin organization 	100% of organizations 50% of organizations	100% of organizations 100% of organizations 50% of organizations
Improving Water Wisdom		
<ol style="list-style-type: none"> 1 <i>Systems for information generation, assessment and dissemination</i> <ul style="list-style-type: none"> • Established at national level • Established for international river basins • Established at Africa-wide level 	50% of countries 30% of basins	100% of countries 100% of basins
<ol style="list-style-type: none"> 2 <i>Sustainable financing for information generation and management</i> <ul style="list-style-type: none"> • Review of global experience • Implementation at national level • Implementation at river-basin level • Implementation at Africa-wide level 	100% complete 50% complete 30% complete	100% complete 90% of countries Three established
<ol style="list-style-type: none"> 3. <i>IIFRM Capacity Building</i> <ul style="list-style-type: none"> • Create public awareness and consensus • Knowledge gaps identified • Partnerships for strategic assistance • National research institutes established • Regional research institution established • Gender/youth concerns mainstreamed 	100% of countries 100% of countries 100% of countries 20% of countries One established 30% of countries	60% of countries Two established 100% countries/basins

Actions	Targets		
	2005	2015	2025
Meeting Urgent Water Needs			
1. <i>Proportion of people without access</i> <ul style="list-style-type: none"> to safe and adequate water supply to safe and adequate sanitation 	Reduce by 25% Reduce by 25%	Reduce by 75% Reduce by 70%	Reduce by 95% Reduce by 95%
2. <i>Water for achieving food security</i> <ul style="list-style-type: none"> Water productivity of rain-fed agri. and irrigation Size of irrigated area 	Increase by 10% Increase by 25%	Increase by 30% Increase by 50%	Increase by 60% Increase by 100%
3. <i>Development of water for agriculture, hydropower, industry, tourism & transportation at national level</i>	5% of potential	10% of potential	25% of potential
4. <i>Conservation and restoration of environment, in biodiversity, and life-supporting ecosystems</i> <ul style="list-style-type: none"> Allocation of sufficient water for environmental sustainability. Conserving and restoring watershed ecosystem 	Implemented in 30% of countries Under development	Implemented in 100% of countries Implemented in 100% of countries	Implemented in 100% of river basins
5. Effective management of drought, floods and desertification			
	Under development	Operational in 50% of countries	Operational in 100% of countries
Strengthening Financial base for desired water future			
1. <i>Sustainable financing for policy and institutional reform and capacity building</i>	Operational in 60% of countries		
2. <i>Sustainable financing for information generation and management</i>	Secured in 100% of countries		
3. <i>Financing urgent water needs</i> <ul style="list-style-type: none"> Implementation of pricing and full cost recovery Increasing private sector participation Mobilizing finance from national and international sources 	Operational in 50% of countries Operational in 30% of countries Secured for 50% of countries	Operational in 100% of countries Operational in 100% of countries Secured for 100% of countries	

Investment for the Desired Water Future

To meet the challenges of the Vision and implement the Framework for Action for a secure and sustainable water future, substantial investment outlays will be required. The key areas needing investment are policy development, institutional reform and capacity building, knowledge and information generation, water infrastructure and services to meet immediate needs and increase water productivity. The main obstacles to achieving the Vision and implementing the Framework for Action are obtaining the required investment and creating the enabling institutional environment and capacity to manage it. The detailed investment requirement and financing strategies will be established once national plans and frameworks for action are prepared based on the African Vision.

In order to give some idea of the investment needed for implementing the Framework for Action, the African Development Bank has come up with a figure of \$US 20 billion as being necessary each year over the coming 25 years to attain the minimum condition of the desired water future. This is about 11% of the global estimate of \$US 180 billion per year for implementing the global Framework for Action in developing countries. A summary of the aggregate investment level for the main development components is given in Table 3.

Table 3: Summary of Preliminary Investment Requirement

Framework for Action Cost Centre Annual Investment	Annual Investment US \$ billion
1. Water supply for basic needs	5.00
2. Sanitation and hygiene	7.00
3. Irrigation and water-productivity improvement	4.00
4. Water for industry, energy and transport	2.10
5. Flood and drought management	0.40
6. Policy and institutional reform and capacity-building	0.35
7. Knowledge and information	0.45
8. Awareness and education	0.45
9. Research-search and development	0.25
Total	20.00

A Glimpse at 2025 Africa

Adherence to the Framework for Action will result in a new way of thinking about water. It will result in fundamental changes in current policies, strategies and legislative frameworks, and also in institutional arrangements and management practices. It will result in a desirable impetus to

economic and social development, water for health, and water for food. A glimpse at this water future in Africa is reflected in the following:

- New policy, strategy and legislative frameworks;
- Bottom-up institutional arrangements;
- Adherence to demand-responsive approaches while meeting the basic needs of the poor; and
- Food self-sufficiency.

A living flood plain

Early on an April morning in the year 2025, on one of the vast floodplains of the Sahel, Ibrahim Diaw leads his herd of long-horn cattle to their dry-season pastures. The grazing routes for nomadic herders are based on the ecosystem restoration programme initiated at the turn of the millennium. Using these migration pathways no longer results in violent conflicts with farmers, as was the case 40 years ago after intensive irrigated rice schemes were constructed throughout the plain.

Now his herd prospers through access to large expanses of restored perennial grasses, including those of the new Wahta Biosphere Reserve. Throughout the wet and dry seasons, water holes provide drinking water for his animals and the floodplain “works” for the benefit of Ibrahim and the local people who can count on stable livelihoods based on recession agriculture, semi-intensive production and artisanal and small-scale commercial fishing. Ibrahim walks in the grass and thinks of the past desiccated flats, 25 years without a single wedding in the villages, his father who thought that they had been forgotten by God... He thinks that efforts to mitigate the impact of infrastructure development are about to pay off. the dikes have been put to good use, artificial flooding schemes are effective and water is not wasted anymore. Ibrahim’s floodplain is alive and its water resources are used wisely.

Source: Water and Nature Vision (October draft)

New policy, strategy and legislative frameworks. It is envisaged that under the Africa Water Vision water policy will be framed within a comprehensive and integrated approach to the development and management of water resources. National water policies shall be adopted at the highest political level, and followed by water resources management strategies to implement them. Governments would retain control through regulation and an enabling environment, with decentralization and empowerment providing a shift from centralised and top-down administration and implementation.

Regional and national strategies would be designed and developed to implement water policies based on Integrated Water Resources Management principles. Such strategies would be aligned and integrated with other government strategies in such areas as economic development, environmental protection, land use management and energy production.

Water laws and regulations would be modified to reflect market principles, enabling a breakthrough from an administrative system of water allocation to a demand-responsive one. This would not be done at the expense of abandoning the regulatory roles of government or the social value of water,

however. The rights of people to water to meet their basic needs would be entrenched in policy, strategy and legislative frameworks across the continent.

Moreover, water laws and regulations would be revised to give more attention to issues of water quality management. In this environment, pollution of water resources would be minimized, the principles of polluter pays would be widely used, and water re-use and waste recycling would be practiced. Furthermore, the location of “dirty” industries from industrialized countries to developing ones would be abolished by national and international consensus.

National legislation and regulations would be harmonized between countries; facilitating consistent basin-based management of international waters and fostering a win-win, regionally integrated economy. Water resources management would become influential upon a wide spectrum of legislation not immediately directed at water (e.g. environmental law, bio-safety).

Bottom-up institutional arrangements. As a result of the Vision, there is a geographical hierarchy of institutions characterized by close vertical integration and by very close horizontal integration with other sector interests. Key principles underlying such institutional arrangements include transparency, accountability, demand-responsive approaches, and market orientation. Given their role in irrigated agriculture, food production and in maintaining the health of families and societies, women take on key positions and functions in decision-making under the new institutional structures.

In these new structures, responsibility for key aspects of overall management is passed to the community through decentralization. There is, simultaneously, a shift away from provincial and district water administration to basin and sub-basin management. Governments become enablers and regulators rather than direct service providers, and this leads to an accelerated achievement of government policy. At the regional level, river-basin commissions and river-basin authorities are established to manage water across international borders. There is a “levelling of the playing field” whereby all participating countries are able to negotiate on an equal footing for their shared and mutual benefit.

Adherence to demand-responsive approaches while meeting the basic needs of the poor. Liberalization of African economies that results from the new Vision is matched by a more market-oriented approach to water resources management. Water pricing and taxation within countries becomes sensitive to the relative availability of water within catchments boundaries and to demand. Moreover, public enterprise reform in water utilities is aimed at improved efficiency, cost recovery, and financial viability. Increased water efficiency results in lower levels of unaccounted-for water, higher levels of user revenues, and lower costs of infrastructure development. It thus becomes possible to move public funds towards capital expenditure for water infrastructure, and away from recurrent spending. As part of the economic reforms, increased private sector participation in financing water infrastructure and delivering water services is evident.

Market reforms are accompanied by the development of sound regulatory frameworks, and social

criteria are built into the pricing principle to ensure that the basic water needs of the poor are addressed. Development and expansion of water supply systems is driven by what users want and are willing to pay for. There is no insistence that all must be served with the same level of service whether they can afford it or not. Instead of this, the principle of service differentiation is also firmly established so that different socio-economic groups in different parts of an urban area or of a country are able to obtain the types and levels of services that they want and are willing to pay for. The agency responsible for providing water services is autonomous from government but manages the system under technical, financial and administrative guidelines set by national governments in order to safeguard the interests of both consumer and supplier of the service. Links between water supply and environmental sanitation are made in the planning of new programmes. Hygiene education becomes crucial to planning in the sector.

Food Security. Food security is the result of a number of critical interventions. As a consequence of the Vision, countries have optimized the use of available land and water resources by considering Riparian and environmental issues. They have improved watershed management practices, implemented necessary institutional reforms, established enforceable protocols for shared water basins in the region, improved databases and information sharing on land and water, and enhanced trade in food crops and products.

Second, agriculture is operated as a business with more specialized farms, optimizing the use of organic and inorganic inputs and taking into account state-of-the-art soil and water conservation techniques.

Third, surface and groundwater is managed more efficiently through improvements in technology, equipment and water storage and distribution facilities for irrigation (increasing productivity per unit of available water), aquaculture, domestic and industrial use, livestock, wildlife and nature. Fourth, rainfed agriculture is expanded through appropriate strategic planning.

Finally, African countries achieve improved water availability and management by developing appropriate drought-and flood-mitigation strategies, improving water storage, and reducing water losses. This is complemented by cost-effective technologies for desalination, recycling of water, prevention of resource degradation and reductions in energy costs.

These are examples of conditions prevailing in 2025 as a result of the Vision; but how do we move from where we are to these desirable goals? The framework for action provides an answer.

The Way Forward

The attainment of these and other desirable outcomes of the Vision requires action at various levels, such as the grassroots, national and subregional water basin levels. Action should also be

taken at the level of subregional economic commissions (such as the Economic Community of West African States (ECOWAS) and SADC) and of Africa-wide organizations (such as the African Development Bank (AfDB), the Economic Commission for Africa (ECA), and the African Union (AU)). The priority actions that need to be taken include awareness- and consensus-building, creation of enabling environments for international cooperation, responding to immediate water problems, creating frameworks for Integrated Water Resources Management, and capacity building.

Building awareness and consensus. There is an immediate need to create awareness and consensus about the Vision at all levels, using messages that may be revised from time to time and from place to place to reflect local and changing circumstances. An initial set of such messages is presented below:

Africa Water Vision Messages:

1. Provide safe and adequate water and sanitation for all, urgently.
2. Make equitable and sustainable use of Africa's water resources.
3. Ensure sustainable development and management of water resources for all.
4. Use water resources wisely to promote agricultural development and food security.
5. Develop water resources to stimulate socio-economic development.
6. Treat water as natural asset for all in Africa.
7. Share management of international water basins to stimulate efficient mutual regional economic development.
8. Ensure adequate water for life-supporting ecosystems.
9. Manage watersheds and flood plains to safeguard lives, land and water resources.
10. Price water to promote equity, efficiency and sustainability

Creating an enabling environment for international cooperation. Management of international waters has been identified as a priority in Africa due to the multiplicity of international waters. To respond to this, early action should be taken to develop a framework and an enabling environment for cooperation in the development and management of international water basins. Action would be required at an all-Africa level, at the subregional level, and at the national level. Good models that have been cited above include the Nile Basin Initiative (NBI) and the Protocol on Shared Watercourse Systems of the Southern Africa Development Commission (SADC), the Lake Chad Basin Commission (LCBC), and the Niger Basin Authority (NBA).

Responding to immediate water problems Reference has been made to the inter-dependency between water and economic development. It has been suggested that water-resources issues (such as climate variability and shared river basins) and inadequate access to water and sanitation services can contribute to poverty. Similarly, on the positive side, well-managed and adequate water resources can be a result of and contribute to cause sustainable economic development. The challenge is how to prime the pump to launch the upward spiral in which water-resources

development and economic development become mutually supportive. To this end, Africa would like to appeal to its development partners for initial financial assistance to facilitate action in three priority areas: (a) institutional reform; (b) information generation and management; and (c) meeting urgent water needs. Addressing these three fundamental needs would contribute to improved vitality, longevity, and human productivity that can serve as the springboard for socio-economic development.

Creating frameworks for Integrated Water Resources Management. A prerequisite for successfully addressing the pressing water problems is to change from the fragmented approach to an integrated approach to Integrated Water Resources Management (IWRM). A first step in this regard is the establishment of an enabling environment at national level that will include policies and institutional arrangements for water-resources management and allocation between competing demands. This calls for an understanding of the Dublin-Rio Principles. It also calls for a programme of gap analysis to determine the types of strategic assistance needed at the country level for implementing IWRM.

Moreover, it will call for an interpretation of the concept of water as an economic and social good. In this regard, it has been stressed that it might be helpful to separate the competing demands for water for economic development from the competing demands for water for supporting life and the environment. This would make it easier to treat water strictly as an economic good for competing demands for economic development. However, for its use to support life, such as water supply and sanitation for the poor or for food security, a case may be made for treating water as both an economic and a social good. The aim here is to price water for these services so that it can promote equity, efficiency and sustainability. A lot of debate and public education may be necessary to arrive at a consensus on these issues.

Building capacity. One of the major constraints in the development of water resources in Africa has been identified as inadequate human and institutional capacity for IWRM. Unfortunately, Africa does not have an adequate number of highly motivated and highly skilled water professionals who can deal effectively with the complex issues of water scarcity, climate variability and joint management of international waters. It is fortunate that, under the Global Water Partnership, a program of capacity building has been launched, starting in Southern Africa. Other regions in Africa need to take the initiative to call for the use of the services of this new programme for capacity building at national and international levels.

Identifying vision drivers. Vision drivers (or vision driving forces) are long-term factors that influence the course of future water developments. They represent the conditions of the social and ecological system and the engines that drive the development of water resources towards the desired Vision. By knowing the most important drivers, it is possible to gain an insight into the direction and speed of water resources development in the future. In view of their importance, a number of driving forces that might be relevant for the Africa Water Vision have been identified. In order

of priority, they are socio-economic, demographic, environmental, governance, and technological factors. There needs to be early consensus on how these drivers are to be defined.

- **Socio-economic factors.** The main socio-economic factor likely to constrain attainment of the Vision is the widespread poverty resulting mainly from slow economic growth and high levels of indebtedness on the continent. It is feared that this will inhibit investments in water resources development. There is a need to address this as a matter of urgency, especially through the expansion of access to safe and adequate water supply and sanitation services.
- **Demographic factors.** A key demographic constraint is rapid population growth and urbanization resulting in increasing demand on scarce resources under conditions of limited managerial capacity. A related factor is the high prevalence of communicable diseases and premature death due to inadequate, unsafe and inequitable access to water supply and sanitation. Countries need to review the trade-offs between different population policies in order to ensure that demographic factors do not limit socio-economic development or lead to increased water scarcity.
- **Environmental factors.** The major environmental factor is climate variability (spatial and temporal) leading to drought, desertification, floods and other natural disasters. A second factor is environmental degradation from domestic, industrial and agricultural waste. A third factor is failure to allocate adequate water resources to sustain life-supporting ecosystems, both terrestrial and aquatic. Addressing these factors at the national and international level is absolutely critical for Africa's sustainable social and economic development. If they are not addressed, the prognosis is dire.
- **Governance factors.** There are numerous governance factors in Africa. They include lack of accountability, transparency and good governance, resulting in ineffective management of water resources; inadequate cooperation and coordination in the management of national and international water basins; inappropriate institutional arrangements resulting in poor management and low capacity in human resources; inadequate regulatory and legal frameworks at local, national, and regional levels; inadequate stakeholder involvement in water resources management, particularly women and the youth; and civil strife and inter-country wars. A lot of work remains to be done on this constraint.
- **Technology factors.** The key technological factor is the existence of critical gaps in data (ground and surface water information and knowledge in the water sector). Inadequate technological know-how is another factor. The Internet is a major instrument for overcoming some of the technological constraints; yet in many parts of Africa, high telephone charges constitute a major constraint to access to the Internet. There is an urgent need for appropriate policies on Internet access in African countries.
- **International factors.** Water does not recognize borders. One factor is Africa's abundance of shared international river basins, which will create interdependencies that can be threats or opportunities. A second factor is climate variability, which creates untenable risks in the absence of inter-country and inter-regional cooperation, allowing diversified sources of water, food, power, and so on. Regional institutions and governments need to promote cross-border

economic cooperation and integration, replacing threats with opportunities and mutual benefits.

Conclusions

Water is clearly a major factor in socio-economic recovery and development in Africa. The continent appears to be blessed with substantial rainfall and water resources. Yet, it has severe and complex natural and human-made problems that constrain the exploitation and proper development of its water resources potential. It is now recognized that these problems are surmountable. However, business as usual in water resources management is not the way to overcome them. It is an approach that is bound to have disastrous consequences. A new Africa Water Vision for 2025 has been developed accordingly to address these problems and to stimulate a shift in approach toward a more equitable and sustainable use and management of Africa's water resources for poverty alleviation, socio-economic development, regional cooperation and the environment.

A Framework for Action towards the attainment of the Vision has been defined along with milestones and targets towards the Vision. What remains is mobilizing the political will, grassroots support and sustainable financial resources to make the Vision a reality.

Session on Water for African Cities

Recommendations

Noting that more than a billion people in the world lack safe drinking water and that nearly three billion people live without access to adequate sanitation;

Recognizing that the scarcity of water resources and pollution of water bodies have become more prominent than ever and that the urban water and sanitation crisis is now seriously threatening the living standards of the urban population, especially slum dwellers;

Recalling the Millennium Summit, which formulated the goal of halving the number of people without access to water by 2015 and the World Summit for Sustainable Development (WSSD), which incorporated the goal of halving the number of people without access to sanitation by 2020; and

Further recalling that the WSSD implementation plan target to prepare national Integrated Water Resources Management (IWRM) and Water Efficiency Plans by 2005

Taking note of the key problems and issues currently faced by the water and sanitation sector including:

- Information gaps on urban service coverage, especially intra-urban differentials, as well as the quality of service provided;
- Need for effective monitoring of the Millennium Declaration (MD) and WSSD goals in urban areas
- Water demand management, that is, the efficient allocation of services, needs much greater attention when dealing with urban water issues;
- Sanitation and hygiene promotion, a key to human dignity, need priority in their own right;
- Pro-poor governance ensuring greater transparency and accountability, and addressing the social challenge of equitable resource allocation;
- Income generation for the urban poor linked to water and sanitation;
- The environmental challenge of protecting freshwater sources from growing volumes of urban waste; and
- The challenge of mobilizing financial resources to meet the growing cost of water provision from ever distant and degraded sources and the provision of sanitation services.

The PANAFCON participants in the session on Water and Sanitation for African Cities deliberated on the following thematic areas:

Pro-poor Water Governance and Follow-up Investment

Discussions focused on the need to institute pro-poor urban water governance in an integrated framework and to facilitate follow-up investment. This would support change in governance so that the poor are given a voice in collective decision-making for improved access to quality water supply and basic sanitation. It was recommended that the approach should:

- Directly effect policy, legal, regulatory, and institutional instruments; and
- Indirectly facilitate follow-up investment in water supply and basic sanitation to benefit those in the low-income bracket without access to services.

Urban Sanitation

The main issues identified include restraints for replication and scale-up of good practices in the urban drainage sector, linkage of water and sanitation governance measures to local authorities, the question of waterborne sanitation versus on-site sanitation approaches and sustainability of donor-supported activities, consideration of physical planning, land tenure, solid waste management and drainage as key elements in the planning of urban sanitation. The following recommendations were made:

- Equip the poor with sanitation facilities while at the same time providing them with efficient support services by focusing special attention on active community involvement and ownership in the provision and management of services provided;
- Adopt partnership approaches and development of innovative financial mechanisms to mobilize local funds and facilitate the leveraging of funds available from other sources;
- Promote good practices by undertaking evaluation and giving approval for those practices which should be supported;
- Implement pilot scale and demonstration interventions with donor support while considering financial sustainability at the outset; and
- Water and sanitation for low income communities must give due attention to the wider issues of urban planning and may be used as an opportunity to enforce good planning practices

Urban Catchment Management

The challenge is to augment and strengthen the environmental/water source protection within the urban environment by incorporating water quality and quantity perspectives as well as socio-economic and ecological integrity aspects in an IWRM framework articulated at the local level through local catchment management plans. The objective should be to protect and secure

water resources in urban catchments, and better coordinate water management with upstream/downstream users. The recommendations were to:

- Significantly expand the range and scope of urban catchment management activities and approach them from a river basin perspective; and
- Aim at developing and implementing strategies, including livelihood programmes, which will directly improve the living conditions of the poor.

Water Demand Management (WDM)

WDM is perceived as a viable component of urban water management given the direct water savings realizable from its adoption. The challenge should be to scale-up and expand the concept while maintaining the effectiveness of the interventions by putting in place mechanisms to facilitate leveraging further investment. It was recommended to:

- Mainstream WDM in water policies and planning processes and develop national WDM strategies;
- Develop an adequate regulatory framework to ensure water service providers are accountable for their performance;
- Develop an adequate information system that can provide key performance indicators for each city; and
- Initiate a national ongoing water awareness programme for consumers in all major cities.

Water Education in Schools and Communities

The challenge is to create a new ethic among children and in the community-at-large, through value-based water, sanitation and hygiene education by integrating water education into the school curricula and animating and involving communities. This should lead to change in perception of water and sanitation, and advocacy for the proper utilization of water at home, at school, and in the work place. Potential constraints include difficulty in the process of incorporating insufficient documentation in existing curricula. It was recommended to:

- Consolidate ongoing value-based water education (VBWE) activities and extend project outreach nationwide, including in private schools, as well as to more communities in the informal sector through focused group discussions and audio-visual means;
- Introduce VBWE into teacher training colleges;
- Develop and produce VBWE literature and teaching/learning materials;
- Build capacity for education services staff to oversee implementation; and
- Provide water and sanitation facilities for schools.

In order to accelerate rural water supply and sanitation provision and meet the Millennium Development Goals (MDGs) the PANAFCON participants in the session on Meeting Basic Needs recommend the following:

Data collection/Country plan for attaining MDGs for rural water and sanitation: As a basis for knowing where to focus and assist in the acceleration of service delivery, a strong focus must be placed on data assessment (reassessment). These data will show disparities, unserved poor communities who can be systematically targeted as part of a Country Action Plan/programme specifically developed for accelerating the attainment of the MDGs for rural water supplies and sanitation.

Collaboration and integration for rural water and sanitation: It is imperative to work with other related ministries, agencies, civil society and local communities who work in rural water supplies and sanitation, in order to get synergies and best performances needed for the acceleration to achieve the MDGs for rural water supplies and sanitation.

Commitment for rural water supply and sanitation reflected in the Poverty Reduction Strategy Paper (PRSP) and its budget: Commitment to accelerate rural water supplies and sanitation should have highest priority, and should be reflected in the PRSPs and budget allocation commensurate with the accelerated effort to reach the interim MDG goals.

Focus on community empowerment is key: The greatest resource is already in the rural communities; empower them through their assessment and action as well as their financial contributions and resources. They are the key to accelerated development and sustainability of services.

A strong communication/information package is crucial to accelerate actions: As rural water supply and sanitation services will be accelerated, there is an urgent need to effectively disseminate information on policies, technologies and local solutions to all rural communities and those who support them: NGOs, local government, private sector and so on. All actors need to be mobilized for both water and sanitation.

Strong focus on sanitation and hygiene: Sanitation in rural communities and schools need strong, additional focus and support. This is a key investment to accelerate the achievement of the MDGs.

Introduction

Water stress, a direct result of water scarcity, may result in conflict over shared water resources. The human population, due to an exponential growth rate in water demand, is already in conflict with the natural environment (i.e. ecosystems) over the available freshwater resources. Clean water is often not adequately appreciated, except where access to water resources is limited.

Global and regional water resources assessment programmes suffer from a lack of endorsement by governments. There are various reasons, such as a lack of capacity within water ministries, although the existing global comprehensive data sources and associated analyses will be of tremendous benefit to relevant water institutions.

There is, however, a growing tendency to form regional networks and partnerships to holistically address issues impacting on the limited water resources.

Theme: Freshwater Ecosystems Protection

Background

Global freshwater resources are shrinking in quantitative as well as qualitative terms due to increasing demand and pollution associated with anthropogenic activities as well as industrial and agricultural activities. Data collection, monitoring and access to information remain key components for characterizing the spatial and temporal variations in both water quantity and quality as well as climate change influencing water management programmes.

Water Quality Monitoring for Decision-making

Most water sources in Africa are polluted due to agriculture, urbanization and, recently, due to products emanating from the pharmaceutical industry.

Water quality monitoring programmes vary drastically in scope throughout Africa. A national water quality monitoring programme may exist in some countries but not in others. However, active regional monitoring programmes on specific systems may exist, e.g., Lake Victoria Environmental Management Project (LVEMP).

Key issues that must be addressed to implement effective and relevant water quality monitoring programmes include:

- Developing and assessing the effectiveness of legislation, effluent regulations, water quality

standards, impact of treatment processes and Integrated Water Resources Management (IWRM) plans (i.e. the development of wetlands policies and/or conservation strategies as well as establishing and enforcing effluent water standards);

- Incorporating the polluter pays principle in many policies and legislation; and
- Establishing training programmes and public awareness campaigns.

Many African countries are currently not participating in global or regional water monitoring networks and should be encouraged to participate actively in such programmes. Monitoring programmes must be relevant to the needs of a region, focusing on the demands and impacts of various sectors, including the environment. Attempts should be made to standardize and implement water quality monitoring programmes throughout Africa; this can be achieved through legislation and government support for capacity and infrastructural development.

The establishment of a Centre for Disease Control may be a direct result of a national micro-bacteriological monitoring programme. Such a centre, staffed with adequately trained medical personnel, will be in a position to react rapidly to the occurrence/outbreak of water-related diseases, develop appropriate techniques to eradicate waterborne diseases and introduce community-based training and awareness programmes.

Key Recommendation

- African countries must be encouraged to participate in the United Nations Environmental Programme's Global Environment Monitoring System (UNEP/GEMS) by developing appropriate monitoring techniques/tools supported by the implementation of cost-effective approaches of data collection through training programmes focusing on participation at the grassroots level.

Global Water System Project

Vulnerability of African water resources is a result of the combined effects of global climatic changes and regional pressures on available water resources. Africa, particularly its poor, is especially vulnerable to water scarcity and water-related disasters such as droughts, floods and desertification. This is due to the relatively low per capita water storage in Africa, compared to the per capita water storage in Europe and North America, as well as a result of higher climate variability.

Of utmost importance is the interaction between the global population and the global water system, comprising the water cycle, biogeochemical cycles and ecosystems. Interactions such as water and land management programmes will impact and modify regional and global water systems.

Key Recommendation

- To promote a global change research programme, in association with regional research facilities to comprehensively address the water cycle and its modification through human interaction to reduce uncertainties in support of adaptive water management and foster stronger collaboration with African scientists and with African policy- and decision-makers.

Rainwater Harvesting

Rain is a common good and not a commodity. There is a need to promote the social value of water, especially rainwater. Furthermore, rainwater harvesting is an integral part of the hydrologic system and must be developed and managed as such.

Rainwater harvesting is a common method of supplementing the limited freshwater resources in Africa. As a result, rainwater harvesting should be included in the political and development agendas of water resource management within African countries. Institutional reform should address the lack of coordination and synergy that exists among institutions regarding rainwater harvesting at all relevant levels of decision-making, focusing on rainwater harvesting as a supplement to the limited local water resources.

In comparison, other sources of freshwater are also subject to quantity and quality variations while its delivery and development impacts specifically on women and children.

Inclusion of components of rainwater harvesting in academic curricula and awareness programmes will impact on decision-making and policy development.

Key Recommendation

- There is potential for rainwater harvesting as a supplement/alternative for limited (where applicable) local water resources on the continent. It should be promoted and integrated into the mainstream water development agendas of each country. There is need for an investigation on the implementation of rainwater harvesting programmes, including ensuring the quality of the water.

This can be attained through:

Rainwater harvesting for poverty alleviation and improved livelihoods

Rain provides 60% of the world food supply. The majority of people in Africa suffer from poverty linked to food insecurity and scarcity of drinking water. It is imperative to mainstream rainwater harvesting as a readily available local resource in the development agendas for sustained livelihoods and the Millennium Development Goals (MDGs).

Institutional framework for rainwater harvesting

In collaboration with the Ministries of Water, Rural Development, Environment, Housing and Economic Development, national governments should establish an institutional framework that encompasses the rural, urban and peri-urban environments to promote the design of a five-year plan of action on rainwater harvesting. This new institutional coordination office will promote the economic, environmental, gender and cultural benefits of rainwater harvesting programmes.

Upscaling of rainwater harvesting constituencies and networks

Strengthening of rainwater harvesting networks will promote the cross-fertilization of knowledge and result in the development of a database of experiences and practices within individual countries as well as the establishment of exchanges across regions in Africa.

Mainstreaming rainwater harvesting in education policies

Learning institutions at all levels should include knowledge and local expertise on rainwater harvesting in their respective curricula. Governments should disseminate the understanding of rainwater harvesting as an essential part of the IWRM framework.

Theme: Vulnerability of Water Resources in Africa

Introduction

The development of expertise to manage water resources in a holistic, integrated manner remains a key aspect of the vulnerability assessments of river/lake basins in Africa. The further development of expertise is certainly needed, but also the effective incorporation of adequately trained scientists into such programmes as well as the development of appropriate education programmes to train the next generation of water managers.

Special emphasis was placed on the ‘Science-Policy Link’ or the lack thereof. Statements such as “Scientists refer to a lack of awareness (amongst politicians), while politicians refer to capacity building (of scientific expertise)” and “When the public knows the politicians will know/listen’ refer respectively to effective communication or exchange of information between scientists and politicians for optimal resource management as well as to free access to information to the public sector (i.e. communities) and the utilization of information to the benefit of the community.

Special attention was also placed on groundwater, as it constitutes over 90% of the freshwater resources on Earth. Groundwater is a strategic resource, especially for the rural communities, and should be included and managed as an essential part of all IWRM assessments (i.e. river/lake basins management programmes). The utilization of groundwater resources for water supply in peri-urban areas and thus the protection of these resources, are increasingly gaining importance.

Care should be taken to implement policies, addressing the vulnerability of water resources, which are not detrimental to the poor majority in Africa.

Most water in Africa is presently at risk. Rapid vulnerability assessments of selected river/lake basins revealed that further in-depth assessments are needed to address the impacts of the following key issues on water resources:

- Climate change and variability (i.e. increased frequency of droughts and floods, stream flow reduction);
- Ecosystem deterioration (i.e. desertification, wetland degradation);
- Overexploitation and pollution (i.e. reduction in water availability);
- Enhanced population growth (i.e. increased pressure on water resources)
- Poor water and sanitation coverage and service delivery, water-related diseases and HIV/AIDS (i.e. disruption of socio-economic well-being affecting, for example, the conservation of ecosystems);
- Competition for water between various sectors (i.e. hydropower versus irrigation interest);
- Inadequate institutional strength and capacity (i.e. lack of management of water resources);
- Lack of data access, sharing, reliability and standardization;
- Inappropriate monitoring networks; and
- Capacity building.

Key Recommendations

- Comprehensive assessments of vulnerability of water resources to environmental change for all river/lake basins are urgently needed to manage vulnerability risks through adaptation and mitigation measures and integrated management options.
- Comprehensive assessments of groundwater resources, including groundwater recharge for sustainable yield determinations, are required for water availability and appropriate water resource management.

Urban Groundwater Pollution Monitoring – Early Warning Network

Urban aquifers, in particular aquifer systems of underlying peri-urban areas, are vulnerable to various polluting activities due to a lack of infrastructure. The characterization of polluted groundwater systems will direct management plans with regard to available and usable groundwater resources, while early warning systems through establishment of monitoring networks will prevent contamination of resources. Capacity building with respect to groundwater assessments for specific purposes is, again, a critical requirement.

Key Recommendation

- The establishment of networks for early warning systems to monitor groundwater pollution in urban and peri-urban areas.

Theme: Freshwater and Marine Ecosystems

Global International Waters Assessments (GIWA)

The major concerns with regard to river/lake basins as specified by GIWA are as follows:

- Freshwater shortage;
- Pollution;
- Habitat and community modification;
- Unsustainable exploitation of fisheries and other living resources; and
- Global change.

Key Recommendation

- It is important, with a transboundary approach, to evaluate the root causes rather than the symptomatic causes in categorizing and ranking the issues and concerns that determine priorities for remedial and mitigation actions with regard to water resource management.

Integrating Ecosystem Conservation and Management

The important role of freshwater ecosystems in poverty reduction and sustainable livelihoods is often overlooked. In Africa, floodplains and wetlands provide vital support to local economies through fisheries, food and increasingly, ecotourism.

Integrated management to maintain and restore river and lake ecosystems is a critical investment in protecting and improving the quantity and quality of water supplies.

Key Recommendations

- Equitable and sustainable management of rivers and other water basins is a pre-requisite for the maintenance of reliable supplies of clean water.
- Governments and development agencies should invest in ecosystem health as an integral part of Integrated Water Resource Management (IWRM) strategies in order to secure livelihoods and provision of environmental functions, goods and services.

Managing Water for Africa's River Fisheries

Africa's river fisheries sustain some of the continent's most important ecosystems and rich biodiversity. The vast floodplains of the inner Niger Delta, the Sudd of the Nile, the Upper Zambezi, and the Okavango Delta, are among the better known, but across the continent a wide range of floodplains and their associated lakes, fringing wetlands, and extensive coastal deltas, are critical parts of the landscape and support a wide diversity of flora and fauna. These wetland ecosystems are among the most productive on the continent and support important populations of wildlife and annual harvests of a wide range of products, and support the livelihoods of millions of people.

While the range of resources harvested along these river systems varies from river to river, the fisheries are the most important of all resources for people. They not only serve as a critical source of food, but also sustain a wide diversity of livelihoods, ranging from the men who catch the fish to the women who process and trade the catch. Thousands of households in these regions depend directly on fisheries and related activities, such as fish processing and trade.

Despite their importance, the biodiversity values of Africa's rivers have been largely ignored in the river basin planning and water allocation processes. However, as a result of processes such as the World Water Vision (WWV), the Global Water Dialogue and the World Commission on Dams (WCD), there is now increasing awareness of the need for a new approach to river management that can sustain these values. For example, Guidelines 15 and 16 of the WCD call for "Environmental Flow Assessments" and "Maintaining Productive Fisheries" and specify, inter alia, the importance of assessments of the water requirements of fish populations and the mitigation of fish losses on the downstream floodplain through flow releases.

Water management must include the needs of aquatic ecosystems and the people and livelihoods dependent upon them, and approaches such as the "Water Reserve" provide for, in South Africa's Water Law, an explicit legal commitment to achieving this need to be pursued within the region.

Key Recommendations

- Pursue integrated approaches (such as IWRM) to water management for food and environment that embrace the water requirements of aquatic ecosystems and fisheries and the livelihoods that are dependent upon these. This should include coastal ecosystems dependent on freshwater flows for their productivity.
- Encourage water policy and governance processes that embrace all key stakeholders, including farmers, fishermen, and pastoralists, and are informed with high-quality, contemporary analyses of these livelihood systems and their water requirements.
- Ensure that future approaches to water management and information support systems are rooted in effective engagement with local communities that depend on these water resources and their aquatic ecosystems for their health and livelihoods.

Theme 3: Protecting Ecosystems and Livelihoods

Key Recommendations

- **Water monitoring and assessment:** Accelerated technical support and capacity building measures should be undertaken to improve and expand the participation of our countries, experts and civil society groups in international water quantity and quality monitoring and risk assessment programmes with priority attention to the protection of the health of the poor majority of our people and the freshwater ecosystems on which their livelihoods depend.
- **Shared water resources:** Priority attention should be given to the equitable use and sustainable

management of the freshwater ecosystems shared by our communities and countries with water quality standards and environmental water allocations incorporated in all existing and future international agreements on shared water resources, including the availability and sustainability of our groundwater resources, which are too often mined rather than managed.

- **Safe water and sanitation targets:** As the lack of access to safe water and sanitation constitutes a major threat to the health of the poor majority of our people and to the sustainability of the freshwater and coastal ecosystems on which their livelihoods and lives depend, our countries should urgently adopt annual strategic plans and budgets from the community to regional levels to meet the agreed targets of reducing, by half, by 2015, the proportion of our people without access to safe water and sanitation and start implementing those plans in 2004 with our development cooperation partners.
- **Involvement of key stakeholders:** Key stakeholders and civil society groups should be directly involved in decision-making and implementation of more effective water management and efficient use policies with special attention to innovative and low-cost data collection methods (e.g. use of school students with inexpensive and potable water testing kits) and water supply technologies such as rainwater harvesting and sub-surface dams.

Droughts, floods and storms are becoming more common and severe in Africa. The human and environmental costs of weather, climate and water-related disasters have increased dramatically over the past 40 years. Equilibrium shifts are impacting the resilience of ecosystems, affecting water availability and creating increased water stress in many regions. The MDGs and outcomes of the WSSD see the global water crisis as a threat to economic development, poverty reduction and the environment, and hence to peace. Hydrological and meteorological data and information are essential for fundamental basis of IWRM.

Recommendations

- Governments, financial institutions and donor agencies must increase their funding to the institutions responsible for the maintenance and operation of the hydrological and meteorological networks in Africa.
- Data and information exchange should be fostered as a baseline requirement to ensure improved early warning and forecast, especially in transboundary basins.
- The World Hydrological Cycle Observing System (WHYCOS) and other network mechanisms should be expanded to cover all regions and river/lake basins in Africa.

On the basis of two keynote speeches and eight presentations, which were widely discussed by the participants, the session agreed on the following conclusions and recommendations:

Conclusions

- Water security, including water safety, is a prerequisite for economic growth and poverty reduction in Africa. This requires huge investments, far beyond the capabilities of most African countries, hence the solution has to come via external assistance. At the same time, major institutional strengthening is required, recognizing the transboundary nature of most of the continent's water resources.
- As human influence on climate is becoming increasingly apparent, water managers have to design strategies to cope effectively with today's climate variability and tomorrow's climate change, which is likely to increase water stress in already stressed regions. Impacts of climate variability and change on groundwater resources should also be considered.
- The reduction of vulnerability through preparedness, such as early warning systems, is essential to achieving development goals. Risk assessment should be used as a tool for decision-making in development planning.
- Enhancing the understanding of risk from extreme events, climate variability and climate change is a cross-sectoral issue, and the preparation of prevention, response and adaptation strategies requires a comprehensive approach. Therefore, multidisciplinary initiatives such as the establishment of the International Strategy for Disaster Reduction (ISDR) Interagency Task Force, and the Cooperative Programme on Water and Climate should be encouraged, and their involvement in Africa expanded.
- An end-to-end management of disasters is indispensable for risk reduction to be effective at the local level, therefore the efforts to develop more efficient strategies in the management of floods and droughts within the concept of integrated water resources and risk management, such as the ones undertaken by ISDR, World Meteorological Organization (WMO), Global Water Partnership (GWP) and national and regional disaster preparedness and prevention agencies should be strengthened.
- Hydrological and meteorological forecasts, risk-related information and products should be "translated" into common language and be fully disseminated to the end users (from government to community level).
- A large number of National Meteorological and Hydrological Services (NMHSs) in Africa are deficient in their capacities to collect, archive, process and disseminate hydrological data and information. Therefore, training is essential to ensure that NMHSs are staffed with adequate personnel. In this regard, use should be made of existing training centres in Africa, such as the Regional Training Centres in Egypt, the Water Resources Programme at the University of

Dar Es Salaam, Tanzania, and others. Networking and collaboration among these centres are encouraged.

- At the same time, governments, financial institutions and donor agencies must resume their funding to the institutions responsible for the maintenance and operation of the hydrological and meteorological networks in Africa, as their data and information are essential to produce reliable water resources assessments, the fundamental basis of Integrated Water Resources Management (IWRM).
- In addition, institutional capacities of African water agencies should be strengthened, taking advantage of programmes such as the World Hydrological Cycle Observing System (WHYCOS), which should be expanded to cover all regions and river/lake basins in Africa.
- Data and information exchange should be fostered as a baseline requirement to ensure improved early warning and forecast, especially in transboundary basins.
- Regarding the information and products needed to cope with increased climate variability and climate change, the session identified the following requirements for the African situation:
 - a) Models to generate accurate climate change scenarios, predict the impacts on floods, droughts and freshwater availability and their utilization to meet different socio-economic needs;
 - b) Procedures and techniques for evaluating the vulnerability of water resources; and
 - c) The development of adaptation strategies that include a suite of interventions designed to address the impacts on different water uses, with a medium- to long-term framework, in order to provide guidance for water resources managers.

In this context, the session welcomed the offer of the representative of the European Union (EU) to establish contacts in order to explore the possibility of financing research projects on the topics outlined above.

- Water-related climate change research on the continent should aim at, among other things, appropriate downscaling to basin and aquifer levels to provide the necessary decision support tools for managing the impacts of climate variability and change.
- The Global Flood Alert System (GFAS) project of the International Flood Network (IFNet) is welcomed as a potentially valuable tool for flood warning in Africa. It is recommended that this initiative should be closely coordinated with the HYCOS component projects in the continent. In this context, the session welcomed the offer of IFNet to include pilot regions of Africa in their programme of work.

There is need to formulate and implement clear policies and strategies to combat flooding and drought in vulnerable areas in Africa. Coordination of efforts among different agencies having similar objectives should be ensured in order to avoid conflicting policies within a basin.

Recommendations

- To achieve water security, including water safety, huge investments are required from governments and external sources. At the same time, institutional strengthening is required at regional, national and basin level.
- Water managers have to design strategies to cope effectively with today's climate variability and tomorrow's climate change.
- The reduction of vulnerability through preparedness, such as early warning systems, is essential to achieving development goals.
- The preparation of prevention, response and adaptation strategies requires a comprehensive approach.
- An end-to-end management of disasters is indispensable for risk reduction to be effective at the local level.
- Training is essential to ensure that National Hydrological and Meteorological Services are staffed with adequate personnel.
- Hydrological and meteorological data and information are essential to produce reliable water resources assessments, which are the fundamental basis of IWRM.
- Risk assessment should be used as a tool for decision-making in development planning.
- Multidisciplinary initiatives such as the establishment of the International Strategy for Disaster Reduction (ISDR) Interagency Task Force, and the Cooperative Programme on Water and Climate should be encouraged, and their involvement in Africa expanded.
- Efforts undertaken by ISDR, WMO, UNEP, and GWP to develop more efficient strategies in the management of floods and droughts within the concept of integrated water resources and risk management, should be strengthened.
- Hydrological and meteorological forecasts, risk-related information and products should be “translated” into common language and be fully disseminated to the end users (from governments to community level).
- Use of existing training centres in Africa should be given priority for regional training.
- Governments, financial institutions and donor agencies must increase their funding to the institutions responsible for the maintenance and operation of the hydrological and meteorological networks in Africa.
- The World Hydrological Cycle Observing System (WHYCOS) should be expanded to cover all regions and river/lake basins in Africa.
- Data and information exchange should be fostered as a baseline requirement to ensure improved early warning and forecast, especially in transboundary basins.
- Water-related climate change research on the continent should aim at, among other things, appropriate downscaling to basin and aquifer levels to provide the necessary decision support tools for managing the impacts of climate variability and change.
- The Global Flood Alert System (GFAS) project of IFNet should be closely coordinated with HYCOS component projects in the continent.

Lake Chad Basin Commission

Lessons Learned

- Visioning process;
- Consensus on policy guidelines and principle of subsidiarity;
- From conflict to benefit sharing;
- Trust and ownership;
- Partnerships;
- Management structures and implementation arrangements;
- Need for reliable access to data for effective management and operation;
- Common technical tools to ensure effectiveness of management and decision-making; and
- Planning and management should be at the Basin level.

Major Conclusions

- Transboundary water resources need to be managed as regional rather than national economic assets;
- A Shared Vision of all stakeholders of the Riparian countries is a sine qua non for effective and sustainable management of most rivers, lakes and aquifers in Africa;
- Implementation mechanisms for management of shared water resources should enshrine ownership of the “core functions and decisions” with the Riparian countries;
- There should be need for reliable and access to data for effective management and operation;
- Effective participation by civil society and the private sector in the development of existing shared water management mechanisms has been lacking and is the main cause of failure and weaknesses in implementing action and programmes of many River Basin Organizations (RBOs);
- Equitable sharing of benefits are more effective than sharing the water resources; and
- Ensuring good and effective governance is crucial to the success of water as an instrument of integration.

Major Recommendations

- The Regional Economic Communities (RECs) should establish permanent IWRM Coordinating Units for time-bound implementation of actions/programmes, taking into account existing mechanisms (i.e. RBOs);
- Strong CSO and private sector participation is required for success;
- Strengthen scientific and technical coordination/steering mechanisms for planning and implementation;
- Technical knowledge bases need to be systematically improved and made accessible (i.e.

- through the African Water Information Clearing House);
- Programmes and policies must be carried out within the framework of the New Partnership for Africa's Development (NEPAD) and the African Union;
 - The mechanisms for data collection, analyses, dissemination and storage should be strengthened;
 - The existing River Basin Organizations need to be reinforced and new ones created where there is none;
 - Joint management of shared water (aquifers, rivers and lakes) should be considered basic elements for African development and integration; and
 - Considering the disparities of water distribution in Africa, inter-basin water transfer and desalinization are options to be utilized where feasible.

Conclusions

The costs of not investing in water are very large. Estimates of the required funds vary, but they all agree that the required amount is very large. The financing challenge is enormous for all water-related sectors, including:

- Water resources management;
- Irrigation and drainage;
- Water and the environment;
- Water supply and sanitation; and
- Hydropower.

But it is not only about getting more funds.

- Existing resources need to be used more effectively;
- Capacity should be built; and
- Efficiency must be improved.

Investment needs to be embedded in broader pro-poor policies (example of Water Supply and Sanitation (WSS)):

- Resolve land tenure issues;
- Recognize community assets;
- Design for cross-subsidies; and
- Prioritize equity in monitoring and planning.

Donor financing is a small per cent of financing but can play a pivotal role.

The African Water Facility (AWF) was welcomed as a good thing to support countries to improve their Integrated Water Resources Management (IWRM); the African Ministers' Council on Water (AMCOW) and the African Development Bank (AfDB) were requested to speed up preparation in the following areas:

- Provision of incremental funds;
 - Making AWF an African facility for Africa;
 - Flexible design and short reaction time; and
 - Aim at local initiatives (communities, local governments, basin agencies).
-
- Donors must work on leveraging local private capital (i.e. USAID guarantee programme) and

- develop capital markets;
- Donors must support local governments;
- Donors must become more responsive to local needs – try to bridge the gaps between good local initiatives and donor financing; and
- Donors must refocus on support to sector-wide governance frameworks rather than impose “privatization in a vacuum”.

Empowering local governments includes capacity building and making funds available:

- Decentralization renders government more closely accountable to communities;
- Central governments must ensure that devolution of responsibilities (to basin organizations and local governments) goes hand-in-hand with devolution of budgets;
- International donors and development banks must increase support to local governments to build capacity and by direct financing to sub-sovereigns;
- Local government networks and NGOs must foster exchange of know-how among local governments to build their capacity; and
- Local private capital has to be mobilized, and thus local capital markets have to be developed.

Jointly, we must market our sector better to local private financiers.

Jointly, we must make water a better business.

Jointly, we must develop innovative mechanisms, i.e. donor guarantees for loans from local banks.

The MDGs are a global commitment to international solidarity.

In reality, donor financing to the water sector is going down.

Introduction

The main task of the working group was to identify specific policy challenges and to recommend concrete implementation measures for the consideration of the Ministers. The overall theme of the session was “Valuing and Allocating Water”. In this regard, the working group accorded particular attention to the linkages with sustainable livelihoods requirements.

The provisional programme envisaged discussion in the following areas:

- Competing major uses of water;
- Achieving the water and energy targets in terms of the nexus with dams and development;
- Financing action for water management;
- More water and improved sanitation at affordable prices for the majority of people;
- Equity issues in the allocation of water;
- Lessons learned and challenges ahead; and
- Recognizing and valuing the many faces of water.

Perspectives and overall considerations

Poverty alleviation should be a guiding principle for all policies related to sustainable development.

At the Millennium Summit (2000) and the subsequent World Summit on Sustainable Development (WSSD) (2002), world leaders set major new challenges for Ministers responsible for water by adopting specific targets (i.e. development of integrated water management efficiency plans; reducing by half the proportion of people without reasonable and affordable access to safe water and sanitation by 2015).

Meeting these targets will require new and effective policies for valuing and allocating water resources, taking into account the need for equitable approaches. Targets will require fundamental current water policy analyses in order to move towards sustainable use of water for social, economic and environmental benefits of the majority of the populations.

Valuing and allocating water should take into account the following strategic points:

- The underlying value of water to the economy;
- The dependence of the economy and poverty alleviation on the development of water resources;
- The cost of the underdevelopment of water resources to the economy and the constraints which this imposes on growth and development; and
- The integration of the economics of water into the overall economy and the engagement of all sectors in the planning and implementation of water resources development.

Policy Challenges

- Upgrading water issues within the sustainable development imperatives;
- Focusing on the requirements for sustainable livelihoods of the poorest in valuing and allocating water resources;
- Having met the priority needs for sustainable livelihoods, allocation of water for economic use should be to where it has the highest value;
- Creating an integrated policy which involves all of the sectors in valuing and allocating water resources; and
- Harmonization of national policies as a basis for effective subregional integration and cooperation in the valuing and allocation of water resources.

Recommendations

- a) All AMCOW member States should develop comprehensive systems for valuing and allocating water resources, taking into account the economic, social and environmental values in all its uses, giving priority to basic needs of the poor, and considering climate variability and geographic conditions.
- b) Subregional representatives on the African Ministers' Council on Water (AMCOW) Executive Committee should initiate policy dialogue processes on valuing and allocating water resources for sustainable livelihoods and economic growth, involving development cooperation partners and other stakeholders.
- c) In view of the multiple uses of water and the need for comprehensive approaches to valuing and allocating water resources, AMCOW should promote cooperation at the subregional and international river basin level in areas such as (a) water and energy, including dams and development; (b) water and agriculture for sustainable livelihoods; (c) water and health for poverty eradication; and (d) water for balanced economic development and job creation.

These approaches should be supported by multi-stakeholder dialogues in order to ensure the improvement of decision-making frameworks.

Policies for valuing and allocating water resources should accord special attention to the needs of women and children, in line with the spirit of the Millennium Declaration, the Millennium Development Goals, and the outcomes of the World Summit on Sustainable Development. AMCOW should promote policy dialogue at the subregional and regional levels for the development of water management policies that take these strategic considerations fully into account.

To attain the Africa Water Vision of sustainable water management and meet the MDGs in the water sector in Africa, the biggest challenge area that must be addressed upfront and as part of all other challenge areas is human and institutional capacity building. Because of past neglect, political will and a strategic approach is essential. A golden opportunity should be grasped of linking capacity building strategically to water resource management through its systematic inclusion into the IWRM plans, which each country is to have in place by 2005.

The capacity must be developed at all levels. Dedicated capacity-building programmes for Africa need to be established and sustained. All available creative approaches must be used, in particular: networking of existing education and training resources, nationally, regionally and internationally (e.g. WaterNet); establishing and sustaining national and international centers of excellence for critical issues (e.g. excellent existing national centers in Africa); distance education (e.g. the UN Water Virtual Learning Centre); and strengthening the growing partnerships with international training institutions (e.g. the UNESCO IHE Institute for Water Education).

There needs to be high level recognition that “if you cannot measure it, you cannot manage it”. Thus there is an urgent need to greatly improve, and often, even, re-establish, monitoring and assessment programmes to answer today’s questions and prepare for tomorrow.

To be able to leapfrog development towards Integrated Water Resources Management (IWRM), new and emerging monitoring technologies (e.g. the ESA/UNESCO TIGER/SHIP Earth Observing Programme) must be exploited. Such advances must be underpinned by local, regional and international institutions that provide on-the-ground monitoring, calibration, assessment and associated capacity development (e.g. International Institute for Geo-Information Science and Earth Observations), at various scales.

Defining clear performance areas with their associated indicators is a crucial way to link monitoring to management, gauge progress over time and undertake comparative analysis. The excellent work on indicators done over several years by the World Water Assessment Programme (WWAP) and its African component needs to be greatly extended

New ways of disseminating information and sharing knowledge are urgently required to accelerate national and regional development. These include a dedicated, peer-reviewed, African Water Journal; information clearinghouses; and the use of modern decision-support technologies.

Processes need to be established or reinforced to link the science community to decision-makers and civil society. This needs to be organized on both the national and regional levels under AMCOW leadership and with coordinated engagement by the international community. The African Network of IHP National Committees could provide a major contribution to this linkage, and therefore needs to be significantly reinforced and connected to the AMCOW process.

Water Management Challenges in Africa – East Africa

Sub-regional Sessions: Water management challenges in Africa - East Africa Countries Present: Ethiopia, Uganda, Kenya, Sudan, Somalia	
Challenges/1	Recommended Actions
1. Policy and legal framework - either lacking or not fully implemented	<p>Countries should prepare comprehensive policy and legal frameworks, if lacking, and ensure that provisions are implemented.</p> <p>Countries should harmonize their National Water Policy laws and the Transboundary Water Framework (when adopted).</p>
2. In some cases, the traditional water management conflict with the government water policy	In preparation of the National Water Policy, consideration should be taken on the positive elements of the traditional/local water management.
3. Prioritization and allocation of water, sometime does not follow agreed principles	The allocation of water for domestic use should take first precedence. Other allocations should consider water as an “economic and social good” (Economic return/m3 of water).
4. Need for clear institutional framework	<p>Water management should be decentralized to the lowest appropriate level, with clear roles and responsibilities;</p> <p>There is need for capacity building and empowerment (human and finances) to sector institutions at all levels;</p> <p>Whenever any restructuring is undertaken retrenchment and layoff of staff should be handled with a human face.</p>
5. Partial and temporary distribution of water	<p>There is need to use the Early Warning System to plan the mitigation efforts;</p> <p>Undertake rainwater harvesting and storage by the communities and large dams (if appropriate);</p> <p>Undertake groundwater storage/re-charge</p>
6. Technological options	<p>Innovative, appropriate, low-cost water and sanitation technology should be used;</p> <p>There is need for standardization of WSS Technologies and where necessary be manufacture locally; and</p> <p>Establish supply chains for component and spares.</p>
7. Inadequate responses to crisis and disasters	Governments in liaison with UN agencies and NGOs should prepare emergency response portfolios at national, subregional and regional levels.
8. Limited private sector participation	<p>Public Private Partnerships should be enhanced; and</p> <p>Governments should prepare private sector support programmes that should address capacity building and ensure conducive environment (incentives).</p>

9. Limited data, information and awareness	Governments should set up consistent data collection, analysis, dissemination and networking.
10. Inadequate research development	Countries should strengthen and carry out appropriate research and development to address low-cost technological options.
11. Large WSS schemes not being funded	Donors should support governments to undertake medium- and large-scale water and sanitation schemes, eg. dam construction, large irrigation schemes; and cost-sharing arrangement between government and private sector.
12. Limited resources (finances and human)	There is need for additional funds to implement sector capacity building and investment, including Technical Assistance (TA).
13. Not all stakeholders are fully involved in WSS activities	There is need for strong partnership by all stakeholders at all levels (regional, national, local government and community).
14. Software components of water and sanitation programme not purified	There is need for a proper balance between hardware and software components of water and sanitation programme activities both at planning, budget allocation and implementation levels.
15. Water quality activities not given due priority and attention	Governments and communities should prioritize water quality activities and allocate necessary resources (human and funds); Governments should prepare national water quality guidelines; and Wastewater treatment should be addressed.
16. Gender issues not handled	Mainstream gender in WSS activities, in particular, countries should prepare the sector gender strategy that addresses women and girl child concerns and roles.
17. High population growth	Consider the population growth rates in the planning, design and provision of WSS services.
18. Widespread poverty	WSS should be addressed in the poverty eradication action plans; as it is the key ingredient for poverty eradication.

Overview

- a) Water is critical for intensifying agriculture and achieving the agricultural growth rates necessary to lift Africa out of poverty and on a path to sustainable development;
- b) Participants were highly supportive of the main thrusts of the Comprehensive Africa Agriculture Development Programme of the New Partnership for Africa's Development (NEPAD); and
- c) Far greater attention to promoting investments to develop and improve water for agricultural production to achieve economic growth, food security and poverty reduction through agricultural water management was strongly recommended.

Specific Recommendations

Pursue opportunities for innovative new technologies for agricultural water

- Examples: pro-poor, gender-sensitive, small-scale and micro-irrigation; supplementary irrigation; household and in-field rainwater harvesting; groundwater.
- Formal public irrigation is important but is not a panacea; also encourage technologies that are inexpensive, poverty reducing, and aimed at helping women farmers intensify agriculture.

Support innovative approaches to investment in agricultural water

- Examples: private investment by small, medium and larger businesses (including farmers); induce private investment through public-private sharing; learn from positive experiences and scale-up; focus support on women farmers; and encourage multiple use water infrastructure for large-scale storage and for local water supply schemes for productive and domestic uses.

Create conditions that encourage investment and increase likelihood of good returns to private and public investors while targeting the poor, especially women

- Examples: market development at all levels; basic rural infrastructure; secure water and land rights; promote farmers' organizations; capacity building; and research support; encourage local innovation building on tradition.
- Institutional and policy reform is key. Agriculture is the 'engine' of economic growth.

Promote agricultural water in the context of Integrated Water Resources Management (IWRM)

- Examples: seek to achieve high productivity of water; balance allocation among demands; attention to environmental issues; invest in innovative storage technologies.
- Developing effective institutional mechanisms for transboundary water management is

extremely important to maximize and share benefits from limited resources.

Support the Collaborative Programme on opportunities for investments in agricultural water in Africa

- Partners are the African Development Bank (AfDB), Food and Agricultural Organization (FAO), International Fund for Agricultural Development (IFAD), International Water Management Institute (IWMI), the World Bank (WB) with support of NEPAD.
- Objective is to identify ways to make agricultural water investments more attractive, cost effective.

Social and economic benefits of investments in water for agriculture are very high.

INTRODUCTION

In preparation for the twelfth session of the Commission on Sustainable Development (CSD-12), a regional implementation forum was held in Addis Ababa, Ethiopia, from 8-13 December 2003, to review progress of Agenda 21, Habitat Agenda (HA) and the Johannesburg Plan of Implementation (JPOI). The deliberations of the meeting focused on water, sanitation and human settlements. An overall review of progress in implementation was undertaken, including the identification of constraints, opportunities and challenges facing African countries in these areas. The deliberations brought into sharp focus the water and sanitation crisis in Africa, as well as the challenge of rapid urbanization, as highlighted in Agenda 21 and at the World Summit on Sustainable Development (WSSD). While the review showed progress in implementation, it also highlighted the inability of some African countries to meet their goals and targets in the areas of water, sanitation and human settlements.

The meeting recalled the commitments that have been undertaken by African countries, including in the Africa Water Vision, the Millennium Development Goals (MDGs), Habitat Agenda, the Declaration on Cities and Human Settlements in the New Millennium, and the Johannesburg Plan of Implementation. It recalled the African Union Decision 29 on sustainable urbanization in Africa adopted at the Maputo Summit. It also reaffirmed New Partnership for Africa's Development (NEPAD) as the sustainable development framework for Africa.

Main Findings

- There is a generally low level of implementation attributed to, among other factors, inadequate financial resources; increasing debt burden, inadequate technology transfer and poor donor response.
- Human settlements and water and sanitation issues are often de-linked with separate planning processes and interventions.
- Ministries of Planning and Finance as well as the private sector are not often involved in forums addressing basic services and infrastructure.
- Civil society is increasingly gaining donor confidence in the implementation of development projects that benefit grassroots communities, particularly the poor.
- There is inadequate capacity for effective provision and delivery of services in the interlinked areas of human settlements, water and sanitation and revenue generation skills are often lacking.
- Local authorities lack adequate human (technical and managerial), financial and material resources to plan and implement human settlements, water and sanitation policies and programmes.
- Where available, capacities tend to be too centralized and are not well organized or managed. The extent of the problem varies from country to country and depends on the level of

development.

- Apart from capacity strengthening issues, Africa is faced with the problem of capacity retention (trained and highly skilled personnel).
- There is inadequate information and data on the structures of communities, and their level of participation in the provision of services is low.
- Proceeds accruing from the provision of services in the water sector are not used to conserve the resources and communities affected by water resources development projects and more often than not neglected.
- Debt servicing and unfair international trade practices grossly weaken Africa's capacity to invest in key service sectors including human settlements, water and sanitation.

RECOMMENDATIONS

General

- Poverty reduction should be seen as the overarching goal in the provision of housing, water and sanitation, thereby calling for a more integrated and holistic approach to planning and development in these sectors. This calls for the involvement of all sectors of central and local government and partners (local and international).
- Good governance and effective decentralization policies and strategies are seen as key to the effective provision of services in the housing, water and sanitation sectors. Decentralization should be accompanied by the necessary devolution of power and resources.
- Regional cooperation and integration within the framework of NEPAD should be seen as an important vehicle to solving capacity problems at the level of individual States.
- Population growth and dynamics are key drivers of human settlements, water and sanitation requirements and should be an integral part of intervention strategies developed to addressing issues in these sectors.
- Water and sanitation issues should be addressed within the framework of human settlements to ensure more integrated planning and implementation.
- The management of water resources and provision of services should take into account the conservation of the resource and the need for communities that are impacted by water resources development projects to benefit from such projects.
- Water agreements and conventions should be reviewed to, inter alia, recognize the need for Riparian states to access this vital resource.

Capacity Building / Strengthening

- The capacity of local authorities and communities needs to be strengthened in terms of human (technical and managerial), financial and material resources for effective formulation and implementation of policies and programmes.
- The capacity of political leaders and decision-makers at all levels should be strengthened to better attract and manage human resources and investments. Policies and strategies should

also be drawn to retain well-qualified and highly skilled personnel.

- Capacity building includes institutional, human resources (technical and managerial) material and technological as well as financial aspects. These capacities should be built at national, local and community levels supported by networking at the subregional and regional levels. Institutional and managerial capacities can be built at the level of national governments and need not be donor driven. Actions taken to address capacity issues should be informed by a capacity needs assessment.
- Capacity building should be supported by political will and well defined strategic approaches with the involvement of all actors. Governments should develop effective partnerships with the private sector and provide an enabling environment and incentives for private sector participation. Effective partnerships with civil society will help enhance implementation of community projects, particularly targeting the poor. Capacities need to be decentralized and experts should be close to communities that they serve.
- There is a need to establish and develop databases on community structures at all levels and infrastructure serving these communities for well-targeted interventions.

Finance

- Water, sanitation and human settlements are directly linked to health and education. This linkage should be recognized in the Poverty Reduction Strategy Papers (PRSPs) and other national development plans and as such be treated as priority sectors.
- The New Partnership for Africa's Development (NEPAD) is recognized as the framework for achieving sustainable development in Africa. NEPAD programmes need to be well packaged, taking into account subregional and regional dimensions, to attract investments and the necessary financial resources for implementation.
- Effective cost recovery mechanisms should be instituted for financing and there is need for capacity building in innovative revenue generating mechanisms in the interlined areas of water, sanitation and human settlements. These mechanisms should always be complemented with pro-poor cross subsidy policies.
- Resource pooling (including human resources) strategies should be developed for efficient management of scarce resources. Central government should supplement resources of local governments in a predictable manner.
- Complementary housing mechanisms should include the establishment of effective banking systems, micro financing and loan schemes as well as subsidies and grants for the poor.
- Mechanisms to ensure more effective management of financial resources at the national level should be put in place and resources that would otherwise have been wasted should be diverted to financing housing, water and sanitation programmes.
- Development partners should be encouraged to fulfill the Local Agenda 21, Habitat Agenda and Johannesburg Plan of Implementation (JPOI) pledges (including 0.7% of the GDP of Organization for Economic Cooperation and Development (OECD) countries' GDP).
- The Highly Indebted Poor Countries (HIPC) Initiative should be reviewed to include human

settlements, water and sanitation as priority sectors for direction of investments. International trade policies and practices should be directed towards bridging the income gap existing between nations.

The policies of international financial institutions should take into account the nexus of human settlements, water and sanitation for better-targeted interventions.

WATER AND SANITATION

Achievements

The meeting noted the achievements by African countries, including the following:

- African countries have committed themselves to implement several international agreements and goals on water and sanitation;
- African countries have placed water and sanitation high on their development agendas to contribute to poverty eradication;
- Stronger focus on water and sanitation in national policy formulation; and
- Increased cooperation at subregional level and the creation of high-level forums at the regional level, such as the African Ministers' Council on Water (AMCOW).

Constraints and Obstacles

The meeting identified the following constraints and obstacles to implementation:

- Low capacity for implementation, monitoring and evaluation of progress;
- Inadequate level of investment for access to safe water and sanitation;
- Insufficient planning for disaster (drought/floods) preparedness;
- Low level of integrated planning for the provision of decent shelter with basic water and sanitation services, including people in conflict areas;
- Insufficient capacity at local government level to plan and deliver water and sanitation services;
- Low level of integration between health and hygiene education and water and sanitation services delivery;
- Unsustainable and inefficient use of resources;
- Difficulty in mobilizing resources to implement long-term plans;
- Vulnerability of African countries to global environmental changes;
- Inability to manage rapid urbanization; and
- HIV/AIDS pandemic, malaria, tuberculosis, and other communicable and non-communicable diseases.

Possible approaches from lessons learned

The meeting identified possible approaches, including:

- Need to highlight water and sanitation in Poverty Reduction Strategy Papers (PRSPs) and other national development strategies;
- Linking water and sanitation to education and health and human settlements;
- Establishing innovative and accountable partnerships with private sector, CSOs and other relevant stakeholders;
- Closer collaboration among African NGOs to assist capacity building and resource mobilization;
- Promoting the use of appropriate technology in water conservation, rainwater harvesting, sanitation, solid waste and wastewater treatment to increase access to safe water and adequate sanitation, and housing;
- Promote integrated land use and development planning to optimize capacity and resource utilization;
- Increase investment in research and development in water and sanitation;
- Increase of government financing to improve access to water and sanitation;
- Closer alignment of sectoral policies and programmes to NEPAD activities and other development processes; and
- Promote regional and international cooperation for better water management and conflict prevention through trust and confidence building.

HUMAN SETTLEMENTS

Achievements

The meeting noted the achievements by African countries, including the following:

a) Adequate shelter for all:

- Improved access to land and secure tenure;
- Enhanced planning and management towards sustainable land-use policies
- Provision of infrastructure and basic services;
- Improvement of the lives of slum dwellers through slum upgrading programmes and projects, among others;
- Implementation of the Sustainable Cities Programme;
- Integration of sustainable human settlements in national development strategies in some African countries;
- Implementation of Local Agenda 21 projects in some countries; and
- Promotion of good urban governance.

b) Energy and transport in human settlements:

- Promotion and provision of access to energy and its diversification;
- Mainstreaming of energy efficiency measures in the housing sector;
- Construction and rehabilitation of roads; and
- Promotion of different modes of transport, including non-motorized.

c) Provision of resources for implementation:

Establishment of national housing funds and other mechanisms for housing finance in many countries; and

Promotion of informal credit services for housing.

Constraints and Obstacles

The meeting identified constraints and obstacles to implementation, including:

- Inadequate means of implementation including: lack of financial resources, increasing debt burden, inadequate technology transfer, and poor donor response;
- Rising poverty, especially urbanization of poverty;
- Slow progress in good governance and prevalence of conflicts and civil unrest;
- Prevalence of diseases, especially communicable and non-communicable diseases;
- Limited and / or absence of lending institutions in the financing of low-income housing;
- Slow pace of economic growth and vulnerability of African economies to external shocks;
- Weak institutional capacity in African countries;
- Inadequate access to land for human settlements;
- Weak regulatory and administrative frameworks;

- Inadequate enabling environment for participation of private sector;
- Non-involvement and/or lack of capacity in local authorities to undertake the expanded developmental role in management of human settlements;
- Poor human settlement planning;
- Limited participation and involvement of civil society in human settlement development;
- Slow pace of decentralization;
- Natural and man-made disasters; and
- The impacts of urbanization on the African river basins affecting quantity and quality of water demand management.

Challenges

The meeting identified challenges to implementation, including:

- Inability to manage rapid urbanization;
- Transforming African cities into assets for sustainable development;
- Mobilization of domestic resources for human settlements development;
- Empowering local government and strengthening the relationship with civil society in implementing and managing human settlements programmes; and
- Empowering women and youth and encouraging gender mainstreaming in human settlements.

Possible approaches and lessons learned

The meeting identified possible approaches, including:

- Need for inspiring and committed leadership;
- Need for innovative and accountable partnerships, broad participation by all stakeholders, and to learn from best practices;
- Focus on slum upgrading, using local resources and technology and focusing on employment creation, as a point of departure to achieve the goals and objectives of Local Agenda 21, Habitat Agenda, MDGs, JPOI and NEPAD;
- Importance of recognizing the role of the informal sector in the development of policy and long-term economic planning;
- Complementary and integrated approaches to promote and implement sustainable human settlements; and
- Need to enhance and strengthen subregional and inter-regional cooperation in the development of sustainable human settlements.

Recommendations

The meeting made the following recommendations:

- Ensuring translation of international commitments into national policies, programmes and strategies, and acceleration of service delivery in water, sanitation and human settlements;
- Significantly increase the proportion of national, provincial and municipal budgets to provide water, sanitation and human settlements to the poor, to demonstrate commitment;
- Utilize Integrated Water Resources Management (IWRM) as framework for implementation and to this end prepare IWRM strategies by the year 2005;
- Implement catchment conservation and water demand management to mitigate degradation of water and related land resources, and optimize available resources and infrastructure in both rural and urban settings;
- Initiate the devolution of water resource management to catchment-based institutions, where appropriate;
- Devolution of power and resources to local governments and enhancing their capacity to plan, manage, monitor and evaluate water, sanitation and human settlements;
- Increase investment in monitoring, assessment and information systems, to underpin IWRM;
- Promote water, sanitation and shelter as basic needs and fundamental human rights;
- Increase the efficient use of urban indicators and national and local urban observatories in human settlements development and management as well as other sources of data including proxy indicators;
- Mainstream gender and youth in the provision of water, sanitation and human settlements;
- Enforce corporate responsibility for environmental protection;
- Adopt best practices on technological innovations available from the experiences of civil society organizations including the use of indigenous knowledge for the provision of adequate housing, water and sanitation to the poor;
- Call upon development partners to honour their commitments, especially the provision of 0.7 per cent of GDP as official development assistance (ODA);
- Call upon the international community to fully implement debt swaps to support in-country programmes on water, sanitation and housing infrastructure;
- Request the international community to support the Global Shelter Assistance Facility (GSAF) to enable UN-HABITAT to assist African countries to implement slum-upgrading programmes;
- Call upon the international community to increase its support for NEPAD to assist African countries to meet their goals and objectives in water, sanitation and human settlements;
- Adopt and operationalize partnerships at local, national and international levels, as well as create an enabling environment for broader participation from all relevant stakeholders, including the private sector, in the implementation of the Habitat Agenda and in the provision of water and sanitation;

- Address water and sanitation within the framework of sustainable human settlement planning, development and management; and
- Mainstream disaster management into the management of water, sanitation and human settlements.

LINKAGES BETWEEN WATER, SANITATION AND HUMAN SETTLEMENTS

The meeting recognized the importance of linkages between water, sanitation and human settlements. It encouraged African countries to promote policies that integrate these sectors in their efforts to eradicate poverty and promote socio-economic goals. Its recommendations also addressed these linkages. Areas in which these linkages are more pronounced include the following:

- Rapid urbanization and the prevalence of slums;
- Infrastructure development associated with water, sanitation and human settlements;
- Decentralization and devolution of responsibility in the provision of basic services;
- Capacity building to support decentralization for the effective implementation of programmes and projects; and
- Need for integrated country teams involving key ministries for finance, budget and economic planning, housing, local government, water and environment, to plan and implement all issues pertaining to water, sanitation and human settlements.

PREAMBLE

The water crisis in our region is a crisis of governance. There is a desperate need to accelerate the implementation efforts in our countries, sub-regions and regions as a whole. Water is one of the most critical natural resource issues and also a key to sustainable development in Africa. The international community, in both the Millennium Development Goals (MDGs) and the outcomes of the World Summit on Sustainable Development (WSSD), underlined that the global water crisis is a threat to economic development, poverty reduction and the environment, and hence to peace.

The 2002 World Summit on Sustainable Development renewed commitment to fundamentally change the lives of those who suffer the consequences of global disparities while preserving the integrity of the natural environment for future generations. The World Summit reiterated the Millennium Development Goals and also agreed targets for safe drinking water and sanitation. As Africa is a rapidly urbanizing continent, special attention must be given to the water and sanitation needs of the urban poor.

OBJECTIVE

The aim of the Pan-African Implementation and Partnership Conference on Water is to determine how to urgently strengthen water governance in our region in order to collectively meet the WSSD targets and the Millennium Development Goals on safe drinking water and sanitation. The main objective was to focus attention on the implementation and funding requirements for the many regional initiatives and international targets for the water sector in Africa.

ACHIEVEMENTS

Portfolio of water initiatives and projects

The Conference endorsed a portfolio of key water initiatives submitted by each of the five sub-regions, i.e. Southern Africa, Central Africa, Eastern Africa, North Africa and Western Africa. This is the first consolidated portfolio of priority water initiatives from the subregional to regional levels and provides a stronger basis for supporting the objectives of the New Partnership for Africa's Development (NEPAD).

Concrete PANAFCON Initiatives

The Conference forged new partnerships on water in Africa in the context of which a number of significant initiatives were launched, including:

- a) The signing of the joint declaration by the Chair of AMCOW and Director General for Cooperation of the European Commission on the implementation of the African-European Union Strategic Partnership on Water Affairs and Sanitation.
- b) The African Water Facility (AWF) with a targeted funding of over \$ US 600 million for medium-term projects on water and sanitation. The Ministers appealed for the support of the development partners for the enlargement of the resources. The African Development Bank (AfDB) will manage the facility under the policy direction of the Ministers on the African Ministers' Council on Water (AMCOW) Executive Committee.
- c) The Rural Water Supply and Sanitation Initiative supported by the African Development Bank.
- d) The Water and Sanitation for African Cities (Phase II), with initial substantial funding from the Government of Canada. The Ministers appealed for expanded support from other development partners for the newly established UN-HABITAT Trust Fund.
- e) The G8 Action Plan on Water for Africa, within the framework of which an understanding was reached that support will be extended to a number of river and lake basin management plans. The Ministers noted with gratitude the commitment of the EU to continue support for Integrated Water Resources Management (IWRM) in Africa.
- f) The African Water Journal was launched to provide an outlet to consolidate and disseminate knowledge, enhance capacity of professionals and practitioners and facilitate the documentation and sharing of African experiences. Ministers called for financial support for sustaining and expanding the publication.

Water policy challenges and priorities

The Ministers confirmed the consensus on the following nine water management challenges, and endorsed the key recommendations in each priority issue as presented in the section on Commitments and Targets.

- Meeting basic needs: water, sanitation and human settlements;
- Water for food security;
- Protecting ecosystems and livelihoods;
- Managing risks: water and climate;
- Financing water infrastructure;
- Integrated Water Resource Management/Shared water resources;
- Valuing and allocating water;
- Ensuring water wisdom; and
- Governing water wisely.

Millennium Development Goals

The Ministers also reached consensus on the central importance of achieving the new targets on water and sanitation, as follows:

- To endorse the targets to reduce by half the proportion of people without access to safe water and sanitation by 2015 and to provide safe water and sanitation for all by 2025;
- Give special attention to the countries considered most likely to miss the target for safe drinking water and sanitation;
- To incorporate the safe drinking water and sanitation targets as priorities in national development plans and budgets until the goals of safe drinking water and sanitation for all are achieved;
- To establish, in 2004, National Task Force on Water and Sanitation to prepare national plans by June 30, 2005, with annual service delivery targets for achieving the safe drinking water and sanitation targets by 2015; and
- To integrate the national plans on water and sanitation with the national plans for IWRM and other MDGs leading up to the 4th World Water Forum in 2006.

Engagement with civil society

Ministers welcomed the active participation of civil society organizations at the Conference and recognized the role that civil society can play in awareness raising, capacity building and in implementation and scaling up of water resources programmes at all levels, financially and technically. They undertook to ensure that civil society in general, and gender concerns in particular, are taken into account through a recognized process of consultation with AMCOW, in policy formulation in all sectors of water, sanitation and human settlements.

FOLLOW-THROUGH IN 2004

At the national level:

- To establish in 2004 National Task Forces on Water and Sanitation to prepare national plans for achieving the safe drinking water and sanitation targets by 2015.

At the subregional level:

- To conduct negotiations with the development cooperation partners, Bretton Woods institutions, and UN agencies, on the portfolio of projects.

At the regional level:

- To ensure that the Extraordinary Summit of the African Union endorses the commitments and recommendations of the Conference outcomes.

At the global level:

- To use the commitments and recommendations of the Conference as a basis for developing an African common position and approach before and after CSD-12 which will focus on water, sanitation and human settlements (to be expanded on the basis of the plenary discussion on December 12).

Sustaining the momentum and monitoring progress during the Freshwater Decade

The Ministers underscored the need for sustained implementation efforts. Expanding the new partnerships forged during the Conference for implementing the results of the Conference were accorded top priority. Progress made and needed will be monitored by AMCOW and reported to stakeholders over the coming year.

Commitments and Targets

Achieving the MDGs and WSSD targets for water and sanitation:

- To confirm the reference years and relevant water and sanitation data for all African countries used by the Joint Monitoring Programme for the 2003 World Water Development Report (WWDR);
- To prepare indicative charts on the options for annual targets for achieving the overall safe drinking water and sanitation targets by 2015 at the national, subregional and regional levels;
- To use the charts on the annual water and sanitation targets to estimate the financial resources and expertise/capacity building needed to achieve the targets as well as their impact on such key issues as water availability, demand and allocation;
- To take into account how such measures as upgrading water and sanitation infrastructure and making more efficient use of available water can help to meet the water and sanitation targets in a cost-effective way.

Focusing on key water policy priorities and goals

- Meeting basic needs:** Affordable access to safer water and sanitation are basic human needs essential for the health and well-being of families, communities and countries.
 - To significantly improve the provision of water supply and sanitation facilities in unserved human settlements. This will be strongly reflected in the Poverty Reduction Strategy Papers (PRSPs) and budget allocations commensurate with accelerated efforts and through ensuring that country action plans are prepared for reaching the MDGs, which include data assessment; systematic targeting; collaboration strategies and strongly focus on community empowerment (all countries to report by 2005);
 - To support the Water and Sanitation for African Cities Programme and the Rural Water and

Sanitation Initiative, aimed at building capacities and providing and enabling environments for pro-poor investments;

- To increase information and communication for value-based water education, hygiene education and sanitation in schools and communities. Strengthen infrastructure provision in poorly served schools and communities.
- b) **Water for food security:** Reasonable food security is also a basic human need and right which is dependent on the availability of adequate and clean water. Agriculture is by far the greatest consumer of water, often competing with other sectors for this scarce resource. It is therefore essential that priority be given to efficient and sustainable use of water for agriculture.
- To take the necessary measures aimed at increasing agricultural productivity and production through innovative technologies for sustainable and integrated agricultural water use, including pro-poor, gender-sensitive, small-scale irrigation, water-saving and storage techniques (rainwater harvesting); and
 - To adopt innovative approaches to increasing public/private sector investments in the agricultural sector, the main engine of growth in Africa. In this respect the Joint Collaborative Programme on Opportunities for Investment in Agricultural Water Use, is identifying options for increased and more effective investments in water for agriculture in sub-Saharan Africa. The programme relies heavily on local knowledge and expertise.
- c) **Protecting ecosystems and livelihoods:** Development that harms and destroys freshwater ecosystems and livelihoods is not sustainable and should not be called development.
- To invest in ecosystem health and sustainable use of freshwater resources as an integral part of IWRM strategies in order to secure livelihoods and maintenance of reliable supplies of clean water, as pollution and unsustainable use of water resources constitute a major threat to the health of the poor majority of our people and to the sustainability of the freshwater and coastal ecosystems on which their livelihoods and lives depend; and
 - To incorporate water quality standards and environmental water allocations in all existing and future international agreements on shared water resources.
- d) **Managing risks:** Too many preventable diseases, deaths and economic losses are caused by floods, droughts, pollution and other water-related hazards. Droughts, floods and storms are becoming more common and severe in Africa. The human and environmental costs of weather, climate and water-related disasters have increased dramatically over the past 40 years. Equilibrium shifts are impacting the resilience of ecosystems, affecting water availability and creating increased water stress in many regions. Hydrological and meteorological data and information are essential for the fundamental basis of IWRM.
- To increase our funding to the institutions responsible for the maintenance and operation

- of the hydrological and meteorological networks in Africa and to enlist, for this purpose, the support of development cooperation partners and financial institutions;
 - To foster data and information exchange as a baseline requirement to ensure improved early warning and forecast, especially in transboundary basins; and
 - To support the expansion of the World Hydrological Cycle Observing System (WHYCOS) and other networking mechanisms to cover all regions and river/lake basins in Africa.
- e) **Financing water services:** Innovative financial mechanisms are needed to meet the new water and sanitation targets and integrated water management programmes.
- To allocate (at all levels) at least 5% of our budgets for water and sanitation within five years; increase billing and revenue collection, and set an example by ensuring that the institutions under our Ministries cover the costs of water services rendered;
 - To enlist, for this purpose, the support of donor countries regarding their commitments promised to incremental funding for services benefiting local communities;
 - To promote decentralization policies (including budget re-allocations) aimed at leveraging local private capital, supporting local governments, and being responsive to local needs; and
 - To undertake, in all our countries, comprehensive review of policy and regulatory frameworks prior to expansion of privatization of water and sanitation services, including polluter pays policies.
- f) **Integrated water management/Shared water resources:** Water resources shared by communities and countries must be jointly managed on an equitable and sustainable basis.
- To undertake to prepare and adopt national IWRM plans or to embark on the process of their preparation by 2005;
 - To strengthen joint management of shared waters as a basic element of African development and integration; and
 - To promote, in line with our shared vision, the effective and sustainable management of rivers, lakes and aquifers as a sine qua non. Priorities will include:
 - a) Reliable and accessible data for effective management;
 - b) Effective participation by civil society;
 - c) Equitable sharing of benefits instead of just the resource; and
 - d) Considering the disparities of water distribution in Africa, inter-basin water transfer and desalination are options, which may be used when feasible and cost-effective.
- g) **Valuing and allocating water:** Water valuation and allocation must reflect its economic, social and environmental values in all uses and give priority to the basic needs of the poor.
- To develop comprehensive systems for valuing and allocating water resources, taking into account the economic, social and environmental values in all its uses, giving priority to basic needs of the poor, and considering climate variability and geographic conditions.

- To adopt comprehensive approaches to valuing and allocating water resources, in order to strengthen cooperation at the sub-regional and international river basin level in areas, such as:
 - (a) Water and energy, including dams and development;
 - (b) Water and agriculture for sustainable livelihoods;
 - (c) Water and health for poverty eradication; and
 - (d) Water for balanced economic development and job creation.

These approaches will be supported by multi-stakeholder dialogue to ensure the improvement of decision-making frameworks.

- h) **Ensuring water wisdom:** Water policies and management depend, for their effectiveness, on accurate and timely information being available to decision-makers.
 - To accelerate technical support and capacity building measures in order to strengthen the role of our countries, experts and civil society groups in international water quantity and quality monitoring and risk assessment programmes with priority attention to the protection of ecosystem and human health; and
 - To ensure that new ways of collecting, analyzing and disseminating information and sharing knowledge are promoted. These include earth-observing programmes, a dedicated African Water Journal, an African Water Information Clearinghouse, joint monitoring programmes, the use of modern decision-supporting technologies and the promotion of networks and other systems to link the scientific community with governments and civil society.
- i) **Governing water wisely:** Water policies also depend, for their effectiveness, on the involvement of all key stakeholders in planning, decision-making and implementation.
 - To strive to ensure good governance through involving the public and the interests of all stakeholders in the management of water resources.
- j) **Gender and water resources management and sanitation in Africa:** Women and girls in Africa have a special knowledge and play a critical role in the management of water resources, especially at household levels. Despite this, there are vast imbalances in women's access to, control and management of the water resources and sanitation facilities at all levels, with a negative impact on the girl child and the dignity of women.
 - To ensure that gender concerns are taken into account, through a recognized process of consultation with AMCOW, in policy formulation in all sectors of water, sanitation, human settlements, agriculture and food security including harmonization of policies and laws and the domestication of international treaties to create equity and equality by 2005.

