

Chapter 1:

Water For Sustainable Socio-Economic Development

“The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights.” *United Nation’s Committee on Economic, Social and Cultural Rights*

The above statement is true for many people of the world, especially those born and bred in a developed country, but not to a large portion of Africans who struggle daily to get a minimum amount of water to cover their daily basic needs. Though Africa is endowed with abundant water, both urban and rural populations of the continent lack adequate and safe drinking water and are subjected to food insecurity and preventable water-related diseases. This situation is attributed not only to the poor management but also to very low levels of access to safe drinking water and adequate sanitation facilities.

The International Water Supply and Sanitation Decade (IWSSD), 1981-1990, ushered in some progress in providing more of the African population with safe drinking water and suitable sanitation facilities. An additional 40 and 52 million people were supplied with safe drinking water and suitable sanitation facilities, respectively, in the urban areas in Africa by the end of 1988. These brought the urban coverage for water supply and sanitation from 66% and 54% in 1981 to 77% and 79% respectively in 1988 (Yilma E. 1996). In the rural areas an additional 87 and 1 million people were supplied with drinking water and suitable sanitation facilities respectively. These brought the coverage of rural water supply and sanitation from 22% and 21% in 1981 to 26% and 17% in 1988.

Table 1.1: Access to Water in Africa

Year	Access to water (%)	Water in the house or in the yard (%)	Populations unserved (%)
1990	59	17	41
2000	64	24	36

Source: UN/WWAP.2003. World Water Development Report

Table 1.2: Access to Sanitation in Africa

Year	Access to sanitation (%)	People with modern sanitation (%)	Populations unserved
1990	59	11	41
2000	60	13	40

Source: UN/WWAP.2003. World Water Development Report

For the period 1990-1995, with population growth rate estimated at 4.38%, an additional 19 million people were provided with safe drinking water. The population increase resulted in a decrease in the percentage of the population with access to clean water in relative terms. The total number of urban dwellers also increased by about 19 million.

The *Global Water Supply and Sanitation Assessment Report 2000* (WHO/UNICEF, 2001) identifies Africa as having the lowest total water supply coverage of any region, with only 62% of the population having access to improved water supply (Tables 1.1-1.3). The situation is worse in rural areas, where coverage is only 47%, compared with 85% coverage in urban areas. Sanitation coverage in Africa is also poor, with only Asia having lower coverage levels. Currently, only 60% of the total population in Africa has sanitation coverage, with coverage varying from 84% in urban areas to 45% in rural areas. It is predicted that Africa will face increased population growth over the coming decades, with the greatest increase occurring in urban areas. As a result, approximately 210 million people in urban areas will need to be provided with access to water supply services, and 211 million people with sanitation services, if the international coverage targets for 2015 are to be met (WHO/UNICEF, 2001). A similar number of people in rural areas will also need to gain access. Given the Assessment's findings concerning change in coverage over the 1990s, it appears that future needs for rural services may continue to be the most difficult to meet.

Table 1.3: Access to Potable Drinking Water and Sanitation in Africa

	1990 Population (millions)				2000 Population (millions)			
	Total population	Population served	Population unserved	% served ²	Total population	Population served	Population unserved	% served
Urban water supply	197	166	31	84	297	253	44	85
Rural water supply	418	183	235	44	487	231	256	47
Total water supply	615	349	266	57	784	484	300	62
Urban sanitation	197	167	30	85	297	251	46	84
Rural sanitation	418	206	212	49	487	220	267	45
Total sanitation	615	373	242	61	784	471	313	60

Source: WPI, 2003

Sanitation and health – Have African germs become harmful to Africans?

There is a saying often repeated when one does not want to abide by hygienic practices: “African germs are not harmful to Africans”. It made sense to some extent if considered from the point of view of immunity, since most children grew up playing on soils contaminated by human and animal faeces. It now seems things have decisively changed due to changing lifestyles. There is ample epidemiological evidence suggesting that sanitation is at least as effective in preventing disease as improved water supply, which however, involves major behavioural changes and significant household cost. Generally, access to sanitation facilities and improvement of environmental hygiene would lead to an interruption of the transmission of much faecal-oral disease at its most important source by preventing human faecal contamination of water and soil. Children are the main victims of diarrhoea and other faecal-oral diseases and are the most likely source of infection. Child-friendly toilets, and the development of effective school sanitation programmes, are important and popular strategies for promoting the demand for sanitation facilities and enhancing their impact. Adequate quantities of safe water and good sanitation facilities are therefore necessary conditions for healthy living, but their impact will depend on how they are used.

Three key hygiene behaviours are of greatest likely benefit (Khan A. H., 1997):

- Hand washing with soap (or ash or other aid);
- Safe disposal of children’s faeces; and

- Safe water handling and storage.

According to a pilot survey of some countries in Africa (Schleicher, 1995), primary schools in some of the poorest countries have inadequate sanitation facilities with up to 90 young children in a school sharing one toilet or about 54% of the toilets not functioning (Table 1.4). In comparison, rural schools in Burkina Faso, Madagascar and Togo have fewer than 50 students per toilet. In urban areas, though, these three countries are among those with the worst record, with more than 50 pupils per toilet on average. Six countries have fewer than 50 students per toilet in city schools. Inadequate sanitation and water in schools jeopardize not only students' health but also their attendance. Girls in particular are likely to be kept out of school if there are no sanitation facilities (Khan A. H., 1997).

	Pupils per toilet		% toilets non-usable
	rural	urban	
Madagascar	45	55	36
Benin	-	67	34
Burkina Faso	36	64	31
Tanzania	68	32	29
Cape Verde	-	90	24
Uganda	80	20	24
Togo	46	54	14
Ethiopia	77	23	12
Zambia	85	-	6
Equatorial Guinea	-	80	-

Source: A. Schleicher, M. Siniscalco and N. Postlethwaite, *The Conditions of Primary Schools: A Pilot Study in the Least Developed Countries; A Report to UNESCO and UNICEF*, September 1995.

Measuring the socio-economic pressures in Africa

From the socio-economic point of view, Africa faces a crisis of endemic poverty and pervasive underdevelopment. For many African countries, economic performance in the immediate post-colonial era was good.

Figure 1.1: Annual GDP Growth Rates during IWSSD by Sub Regions



Data Source: Yilma W.E., 1996

However, for most of Africa, particularly for sub-Saharan Africa, since the oil crisis of the mid-1970s, economic performance has been poor and is worsening (Mkandawire, T. and C.C. Soludo, 1999). Over the past 20 years, African economic growth rates have been low, a situation that coincided with the IWSSD. Performance was particularly dismal in the 1980s. From 1980 to 1994, average GDP growth rates were lower than population growth rates. From Table 1.5, it can be observed that the GDP during the decade declined in most of the sub regions.

One cannot consider the development of drinking water and sanitation as well as other water sector programmes in Africa as of the mid-1970s without taking into account the economic, political and climatic environments that were prevailing and thereby impacting negatively on the progress in the sector as it did on all socio-economic development activities in the region.

Table 1.5: Socio-Economic Performance Indicators of Africa

INDICATOR	PERFORMANCE (%)					
	1965-73	1974-79	1980-85	1986-93	1990-94	1995-98*
Population growth rate	2.7	2.9	3.0	3.0	3.0	2.7
Growth rate of GDP (avg.)	5.7	3.5	1.8	2.5	1.9	3.75
Growth rate of per capita GDP (avg.)	3.0	0.7	-1.1	-0.5	-1.1	1.05
Growth rate of agricultural output (avg.)	2.7	3.0	1.5	2.7	2.1	3.4
Growth rate of manufacturing output (avg.)	7.3	6.7	5.2	2.5	1.3	2.9
Growth rate of investment (avg.)	9.6	6.9	-4.8	1.2	0.8	-
Savings-GDP (avg.)	16.2	20.9	16.3	15.6	15.3	-
Growth rate of exports (avg.)	8.2	2.6	0.4	3.0	0.6	5.25
Growth rate of imports (avg.)	7.4	6.2	-2.4	0.7	0.4	5.8

Source: ADB, 1994. * Source: Africa Summary Briefings, Live database, World Bank

Table 1.6: Demographic and Social Data of Some Sub-Saharan African Countries (1987-1997)

Country	Surface Area (000 Km ²)	Population (000)	Population growth rate, (%)	Percentage	Urban population growth rate, (%)	Life expectancy Total (Years)	Illiterate population +15 years (%)
Angola	1247	11723	3,3	33,7	5,7	48	57,9
Burkina Faso	274	10971	2,5	30,9	5,9	47,1	80,8
Ivory Coast	322	14565	3,5	44,9	5,2	51	59,9
Eritrea	124	3639	2,7	17,9	4,4	51,6	...
Ethiopia	1101	59256	2,9	14	4,8	48,7	64,5
Ghana	239	18398	3	37,4	4,4	57,2	35,5
Kenya	580	29031	3,3	29,3	6,9	54,9	21,9
Mozambique	802	16537	2,2	34,2	7	46,6	59,9
Niger	1267	9781	3,3	17,8	5,7	47,4	86,4
Nigeria	924	118239	2,9	40,9	5,2	51,4	42,9
- Senegal	197	8765	2,7	43,4	4	50,2	66,9
Somalia	638	10103	2,1	26,5	3,3	48	--
Sudan	2506	29326	2,9	25,6	4,6	53,3	53,9
Tanzania	945	31220	3	25,9	6,4	51,8	32,2
Uganda	236	21749	3,2	13,2	5,9	44,1	38,3
Zambia	753	9319	3	43,7	4,2	47,5	21,8
Zimbabwe	391	11708	2,7	33,6	5,3	52,3	14,9

Source: Africa in Figures, ECA, 1998

The problems are simply listed for reference purposes without elaboration, as their consequences are only too obvious and include (Yilma E., 1996):

- a) Economic problems
 - High rate of inflation;
 - Unfavourable terms of trade;
 - Falling prices for export commodities and rising prices of imports;
 - Mounting debt burden;
 - Stagnant or decreasing inflow of Official Development Assistance (ODA).
- b) Political and management problems
 - Political instability arising from frequent military intervention in government;
 - Civil wars;
 - Economic mismanagement at the national level.

More recent data show, however, that between 1996 and 1998 there was some economic recovery, and average GDP growth rates exceeded population growth rates for the first time in the past two decades. However, this recovery is deemed to still be fragile, and there is a long way to go to achieve a sustainable turn-around.

The Way Forward – Africa Water Vision 2025

AFRICA WATER VISION FOR THE YEAR 2025

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.

The Africa Water Vision for 2025, a result of a collaborative effort by the Economic Commission for Africa (ECA), the African Development Bank (ADB), the African Union (AU) and other stakeholders such as the Global Water Partnership (GWP), is designed to avoid the disastrous consequences of the threats and lead to a future where the full potential in Africa's water resources can be unleashed to stimulate and sustain growth in the region's economic development and social well being. The Vision calls for a new way of thinking about water and a new form of regional co-operation. At the regional level, partnership and solidarity are required between countries that share common water basins. At the national level, efforts should focus on fundamental changes in policies, strategies and legal frameworks, as well as changes in institutional arrangements, management practices and the adoption of participatory approaches, management at the lowest appropriate level, and the mainstreaming of gender issues and the concerns of the youth. At the global level, achieving the Vision calls for assistance from Africa's development partners in mobilizing seed funding for priming the urgent developments needed to underpin sustainable water resources management in the region.

The resources in crisis

Africa is generally endowed with abundant water resources. It has big rivers, large lakes, vast wetlands, and limited but widespread groundwater. Much of this is located in the Central African sub region and in the island countries. Africa has 17 rivers with catchment areas greater than 100 000 km²; and it has more than 160 lakes larger than 27 km², most of which are located around the equatorial region and the sub-humid East African Highlands within the Rift Valley. The total amount of water withdrawn for agriculture (85%), community water supply (9%), and industry (6%) as compared to renewable water resources is still very low (ECA, 2001). The continent also has a huge potential for energy production through hydropower. To exploit this, efforts are already under way to create regional power pools in Southern Africa (the Southern Africa Power Pool (SAPP) and in West Africa. The main threats to sustainable use of African water and land resources are due to identifiable natural phenomena and human factors in the Vision including, among others:

- Extreme and temporal variability of climate and rainfall;
- Growing water scarcity, shrinking of some water bodies, and desertification;

- Depletion of water resources through pollution, environmental degradation, and deforestation; and
- The multiplicity of transboundary water basins.

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. For example, northern and southern Africa receive 9 per cent and 12 per cent, respectively, of the region's rainfall. In contrast, the Congo River watershed in the central humid zone, with 10 per cent of Africa's population, has over 35 per cent of its annual runoff. In the humid equatorial zone (Gulf of Guinea), annual rainfall is over 1,400 mm, and it exceeds 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 per cent lower than it was during the period 1931-1960.

Growing water scarcity. While these variations have led to a growing abundance in water-rich areas of the continent, they have also led to endemic and spreading drought and growing scarcity of water in other areas, especially where low annual rainfalls are accompanied by low levels of internal renewable water resources. For example, it was reported that in 1995, six countries, namely Libya, Tunisia, Algeria, Rwanda, Burundi, and Egypt, were facing water scarce conditions with less than 1667 m³ of renewable water resources per capita per year. Four other countries, Kenya, Morocco, South Africa, and Somalia, were reported to be facing water stress conditions or were under water scarce conditions (with less than 1000 m³/capita/year).

It has been estimated that by 2025, the number of countries facing scarcity would increase from six to eleven, and the number facing water stress would rise from four to nine (ECA, 2001). 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.

Depletion of water resources through human actions. Available resources are being depleted through human actions that reduce both their quality and their quantity. Water contamination is rife across the continent, the result of industrial pollution, poor sanitation practices, discharge

of untreated sewage, solid waste thrown into storm drains, and leachates from refuse dumps. A major problem is pollution from food processing waste and decay of invasive aquatic weeds. These problems are compounded by poor land use and agricultural practices (ECA, 2001). As a consequence, 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 water resources development; and at worst it increases water scarcity.

Among the consequences of such quality deterioration are eutrophication and the proliferation of invasive aquatic plants. Eutrophication is a factor mainly found in lakes. Water hyacinth has already seriously affected most water bodies such as Lake Victoria, the Nile River, Volta Lake and Lake Chivero. Future threats may include pollution from petroleum production and refineries, pollution from agricultural wastes, such as fertilizers and pesticides, and pollution from small-scale industries dispersed in large urban areas. Another water quality problem is saltwater intrusion. It is an issue, especially along the Mediterranean coast and on oceanic islands, which are highly dependent on groundwater resources. It is due in part to over-exploitation of groundwater resources (ECA, 2001).

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 co-operation on both the quality and the quantity of water resources. Africa has about one third of the world's major international water basins (basins >100,000km²). Virtually all sub-Saharan African countries, plus Egypt, share at least one international water basin (ADB, 1999). There are about 80 international river and lake basins in Africa (Hirji, R, and D. Grey (1997)). The Nile Basin, for instance, has ten Riparian countries; the Congo has nine, the Niger has eleven, and the Zambezi has eight. The Volta has six, and the Chad has five. Then there are countries through which several international rivers pass.

One extreme case is Guinea, which has 12 such rivers. 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 per cent, respectively; in the Gambia it is 86 per cent; and in the Sudan it is 77 per cent (ECA, 2001). Despite this, very few shared waters are jointly managed at present, and in many respects, the issues of water rights and ownership of international waters remain unresolved, and national interests tend to prevail over shared interests.

Poverty amidst plentifulness

In the midst of a plentiful supply of water at continental level, there are sub regions 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 water resources development and management in the face of degrading ecosystems.

Access to safe water supply and sanitation services. Access to basic water supply and sanitation services is highly inadequate in Africa. In rural Africa, about 65 per cent of the population are without access to adequate water supply, and 73 per cent are without access to adequate sanitation (ECA, 2001). In urban areas, 25 per cent and 43 per cent are without access to water supply and sanitation, respectively. Due to these limitations, 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 bilharzias) is endemic, 40 are in Africa. Moreover, 16 of 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 per cent 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. Africa also experiences the world's most rapid rate of urbanization, at 5 per cent per annum (ECA, 2001). Given its current economic situation, Africa cannot afford to spend its constrained resources on producing water that is allowed to go to waste. Yet there is a lot of water wastage. For example, the average level of unaccounted-for water is about 50 per cent in urban water supplies; and as much as 70 per cent of the water used for irrigation is lost and not used by plants.

Water for food and energy 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 metric tons per annum to 30 million metric tons in 25 years (ECA, 2001). 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 nutritional supply, namely 2,700 kcal/day/person. In East and southern Africa, the number of food insecure people has almost doubled from 22 million in the early 1980s to 39 million in the early 1990s. It has been estimated that a 3.3 per cent increase in agricultural output per annum is needed to achieve food security objectives for the continent. Worse still, scenarios suggest that if the area under irrigation were to grow by a factor of 3, to over 16 million hectares, this would only represent a 5 per cent contribution to the required three-fold 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 under-utilized potential for irrigation expansion (\pm 39.5 million hectares, not taking into account large-scale river diversion schemes). In fact, two thirds of African countries have developed less than 20% of their potential (in all but four countries in the region, less than 5% 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 expansion of 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 (ECA, 2001).

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 effect, 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 herd, fish, fuelwood, timber needs, medicines) is not being recognized and reflected in national water policies. As a result, such wetlands are increasingly being endangered by poor cultivation, deforestation and overgrazing.

The Dublin Principles (1992) explicitly call 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 subjected to competing demands for economic development, a second part reserved for sustaining the environment, and the third part reserved for meeting basic needs for sustaining life, as has been done in South Africa (ECA, 2001).

Environmental and land degradation. The most important environmental problems are deforestation, land (soil) degradation, water resource degradation, unsustainable use of land and water resources, and loss of biological diversity (ECA, March 1999). One of the underlying causes of this situation is inadequate management of natural resources on which a large part of the economy is based, particularly in areas with high population density and growth rates. In the tropical rain forest areas of the continent, for example, deforestation continues at an alarming rate leading to loss of productivity and the irreplaceable gene bank of immense potential global benefit. In addition, marginal lands are being converted to agriculture, leading to increased runoff, erosion, sedimentation and ultimate loss of productivity. Soil erosion is particularly acute in areas with dense human settlement and inadequate or inappropriate cultivation methods. The productive capacity of the land is falling because of shorter fallow rotations, low erratic rainfall, soil erosion, loss of soil fertility due to soil mining and declining soil organic matter content and overgrazing.

Increased deforestation, mainly from harvesting of fuelwood, has also resulted in the lowering of groundwater levels in arid areas. Similarly, poor management of drylands in Africa, particularly in areas with high population growth rates, is causing desertification to accelerate due to the growing encroachment of people and livestock into these areas. It is estimated that 72 % of arable land and 31% of pastoral land in Africa is degraded. Moreover, over abstraction and/or over regulation of surface waters affects the in-stream environment and downstream consumptive uses, exacerbates saltwater intrusion, affects the productivity of land in estuarine areas, and reduces the capacity for diluting waste discharge. Water pollution, caused by poor sanitation and uncontrolled waste discharge from urban, agricultural, mining and industrial development, increases the cost for

downstream users and impacts public health. Wetland degradation is affecting important natural functions (hydrologic, hydraulic and ecological), which makes the productive resource base vulnerable. Consequently, watershed degradation is altering hydrologic factors and increasing the vulnerability of important watersheds.

From Vision to action

The framework for action in achieving the Africa Water Vision 2025 calls for:

- Strengthening institutional governance of water resources;
- Improving water wisdom;
- Meeting urgent water needs; and
- Strengthening financial base for desired water future.

Above all, success in realizing the Vision will require adherence to the following critical success factors:

- Openness, transparency and accountability 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;
- Proper appreciation of “where we are”, “where we want to be”, and “how to get there”;
- The adoption of sustainable financing and cost recovery methods that are equitable and sustainable, while reflecting the concerns of the poor; and
- Political commitment and grassroots support.

Never in the history of the tortuous efforts in Africa aimed at reversing decades of endemic poverty and pervasive underdevelopment has the realization and awareness of the cardinal role of water been so high than the present. It has also become obvious that the general socio-economic development of African countries would, to a very large extent, depend on how effective these countries would be able to harness their water resources for socio-economic development and above all, for the eradication of endemic poverty. In fact, Africa is at the heart of various UN and international declarations issued and implemented during the past three decades as regards general efforts at socio-economic development and improvement of water supply and sanitation access in particular. The culmination of these international and African efforts are enshrined in the Africa Water Vision and within the eight Millennium Development Goals (MDGs) adopted by the international community. It is evident from the targets embodied in the these documents that water is cross-cutting and essential in achieving these targets for a society free from extreme

poverty, hunger and preventable diseases while ensuring environmental sustainability.

Managing water for sustainable development

Water resources management, enveloping all its necessary components, including planning and development, in its simplest form, must have the objectives to ensure water use for all purposes in order to achieve harmonious economic, social and environmental goals for a country's sustainable development as a whole and also for its component regions. Generally, the aims or targets would include the following (Andah, 2002a):

- a) Identification of existing water resources and their level of development for all purposes.
- b) Evaluation of the quality of available and potential surface and groundwater resources.
- c) Estimates of future demands for all purposes within selected time frameworks.
- d) Assessment of the resources available for future demands.
- e) Formulation of alternative plans to develop the resources at the national or regional scale to match the forecast demands.
- f) Adoption and implementation of the optimum development plan.
- g) Continuous monitoring and periodic review of the adopted plan.

The intricate problems inherent in the preparation of a comprehensive and dynamic water policy have been at the centre of attention of both national and international institutions for the past two or three decades, producing an immense store of information based on experiences of developed and developing countries alike. A broad consensus on the principles to be observed in establishing water management systems can be summarized as:

- Water is a resource vital to the general welfare of a nation and the people have a right to use it within the responsibility imposed by the need to preserve the environment.
- The legitimate responsibility of water management resides in the government with the onerous task of providing the water legal code for the effective and efficient management of water resources and the distribution of jurisdiction to appropriate levels of management.
- For water management to be effective and efficient it must be envisaged in an integrated form, including the quality and quantity of both surface water and groundwater.
- Water management must fit within the framework of national aims and policies with due regard to economic, social, environmental and regional aspects and this principle must govern the decision-making process in every aspect of water and its optimal use.
- Water management must be responsive to the criterion of economy of scarce resources and the nexus of quality of life and the environment.
- Government bodies and individuals involved in water management programmes must provide the funds needed for water management activities.

For water management to be effective, it must be dynamic in essence and the planning must be a continuous process that aims to meet the requirements of all sectors of water use as regards water quality and environmental issues. A long-term water resources plan should provide a comprehensive analysis of sectoral interrelationships, their effect on the national economy and, where appropriate, international provisions for water use. Such a plan must also recognize regional needs and objectives, and provide a mechanism whereby, and a framework within which, they can be fulfilled on a more decentralized basis with the necessary feedback, which calls for Integrated Water Resources Management (IWRM).

The challenge for Africa is to reverse the present trends of rapid natural resources degradation through an integrated approach to land and water resources management within a holistic framework. A prerequisite for successfully addressing the pressing water problems is to therefore change from the fragmented approach to an integrated approach to water resources management, under the four main principles of IWRM (Andah 2002b):

- A holistic approach is needed for the development of human societies and economies, and the protection of natural ecosystems;
- The need for a participatory approach in institutions and arrangements for water development and management;
- The need to recognize the central role of women in the provision, management and safeguarding of water; and
- The recognition that water has an economic value and should therefore be considered as an economic good.

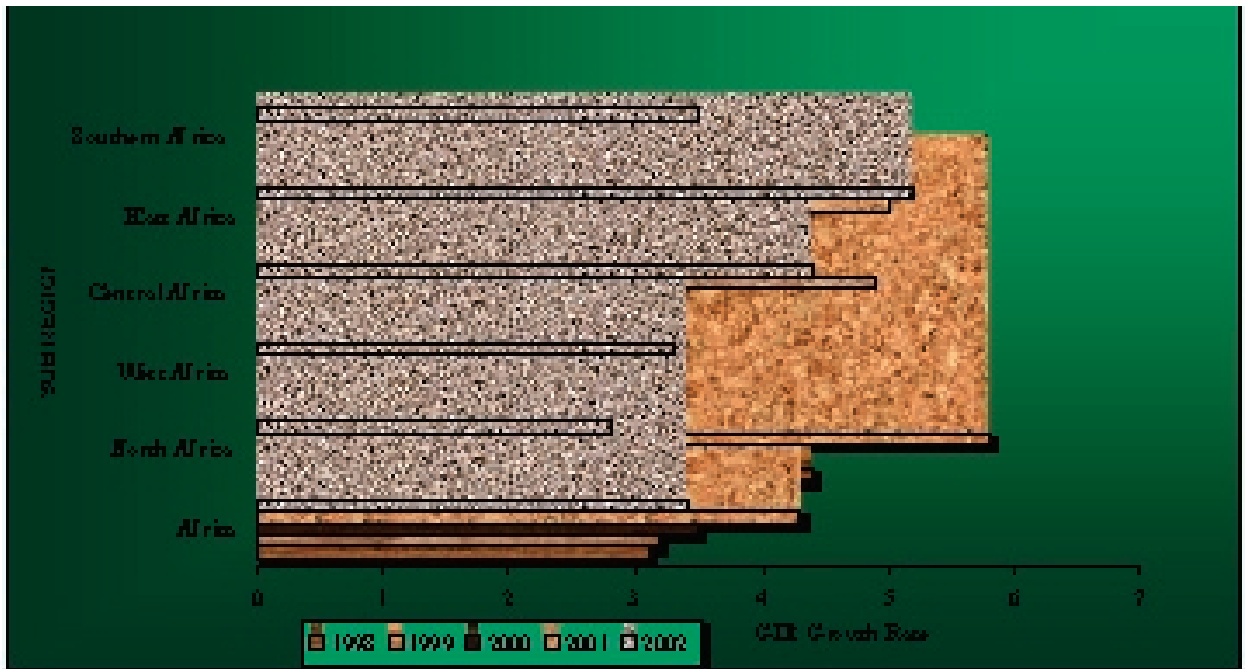
The new thrust

After going through what is known as the “lost decade” of the 1980s, Africa is now at a turning point. Although the prospects in Africa are mixed, it is, on one hand, a region where poverty is projected to increase over the next decade; and its population growth rate remains the highest in the world; civil conflict continues to exact a massive human toll in a number of countries. There are also positive indicators, on the other hand, showing that far-reaching economic reforms are being adopted across the continent and that these have begun to yield positive results in some countries, including (Yilma E., 1996):

- Nearly half of all African countries have been implementing structural adjustment programmes (SAPs) for more than a decade seeking to correct economic imbalances and encouraging faster growth of the private sector;
- Over the past few years, growth rates in three countries have exceeded 8 per cent per annum; in eight others, they averaged between 6 and 8 per cent; and a dozen more attained levels from 3 to 6 per cent; and
- A climate conducive to increased domestic and foreign investment is being created. Capital markets are being formed and African entrepreneurship is expanding.

It is therefore possible to reasonably assume that with the positive trend in progress, better achievement will become increasingly visible in the area of food security and in the provision of safe drinking water for the majority of the population on the continent, especially taking into consideration the concerted efforts, which are being collectively taken.

Figure 1.2: Dynamics of GDP Growth in Africa by Sub Region



Source: UNDP, 2003a

The political and socio-economic atmosphere in Africa has decisively changed for the better, with most countries having an appreciable economic growth and relatively political stability. Africa is at the forefront of international water concerns.

African Water Facility

The Inter Agency Group on Water (now referred to as UN-Water/Africa), in conjunction with the African Development Bank (AfDB), coordinated a stakeholders Conference on Water Sustainable Development in Accra in April 2002, to identify and establish a consensus on the main priorities for water development in Africa, and to contribute to a process for mobilizing the necessary financial resources. The Conference recommended the establishment of an African Water Facility to help mobilize the financial support needed for meeting urgent water needs. The Conference further recommended that the Facility be housed within the AfDB and that detailed studies be undertaken to determine the financial resources required, the possible sources of the fund and the operational modalities. The objective of the Facility is to provide investment support for water resources management and water service provision programmes in Africa that are designed to remove bottlenecks and help leverage additional financial resources from multilateral and bilateral sources as well as from public, private and community resources. This will be done by promoting

innovative actions by both countries and donors; assisting in the creation of an enabling environment; and helping to build governance and management capacity within implementing institutions.

The Facility would be defined under the broad framework of the New Partnership for Africa's Development (NEPAD), the Africa Water Vision and the priority areas identified at the Accra Water Conference. An evolving facility will require gradually increasing resources available for investments. It is expected that the Facility should seek to raise \$ US 300-500 million in the short-to medium-term to leverage funds to contribute toward the \$ US 20 billion needed annually to meet the continent's water targets for 2025. Initially, the Facility will focus on assisting countries to gain access to existing sources as well as additional funds that would be made available to it. The areas of focus of the Facility are indicated below:

- Integrated Water Resources Management planning, projects and programmes;
- Capacity building, especially in the context of programme development, affordability and procurement;
- Data collection, analysis, and dissemination; and
- Design and carrying out of policy and institutional reform.

Moreover, there is a synergy between political and technical institutions in Africa, coupled with a strong collaboration and cooperation with United Nations bodies through UN-Water/Africa. All these ingredients, if well blended, would definitely become a driving force towards the implementation of the Africa Water Vision challenges, around which the African Water Development Report is developed.

Box 1.1: Africa Water Vision Messages:

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

The African Water Development Report

With the current awareness of the impending water crisis the world over, the United Nations system and various international forums have called for an innovative way to manage our water resources not in a “business as usual” manner. That is:

To stop the unsustainable exploitation of water resources by developing water management strategies at the regional, national and local levels which promote both equitable access and adequate supplies.

Towards this objective, and in recognition of the growing water crisis, the United Nations family organizations launched a system-wide effort called the World Water Assessment Programme (WWAP) to:

- a) Identify and describe the nature of the water crisis;
- b) Report progress on the achievements of the agreed targets; and
- c) Strengthen the efforts of member States to monitor and report progress towards achieving targets (UNESCO, 2003).

The aim is to develop tools and skills that would foster a better understanding of the basic processes, management practices and policies that ensure that clean and sufficient water is available to all. WWAP is an ongoing exercise to map the world’s progress towards sustainable use of its freshwater resources. The World Water Development Report (WWDR) was also instituted to publish the main trends and results of this process at regular intervals. It is intended to provide decision-makers at continental, sub regional, regional, national and river basin levels with information that can be used at various levels to govern water wisely. The first WWDR was published in March 2003.

Due to the particular problems of water resources development and management in Africa, UN-Water/Africa took a decision in April 2001 in Niamey to develop an African Water Development Report (AWDR) as an integral part of the WWDR. The AWDR would afford African countries and other stakeholders the necessary tools and skills to monitor the goals and targets of the African Water Vision, concisely formulated as follows:

Water can make an immense difference to Africa’s development if it is managed well and used wisely. Given clear policies and strategies and real commitments to implementation, we can use water to help eradicate poverty, reduce water-related diseases and achieve sustainable development.

The objectives of the AWDR are therefore to:

- Provide a lasting and durable mechanism to monitor progress made in implementing the African Water Vision;

- Provide African decision-makers with an authoritative basis for managing Africa's water resources; and
- Serve as an integrative programme for the strengthening of UN-Water/Africa.

The development of the AWDR will rely on reports from various countries and from different transboundary basins prepared and written by consultants who are familiar with the specific problems of the countries or areas, adopting and adapting the methodologies used in the WWDR. The present report is an interim phase in the process of developing the AWDR.

Turning the messages into challenges for water security

The African Water Development Report will be articulated along eleven key challenges. The following seven are contained in the Hague Ministerial Declaration (2000):

1. **Meeting basic needs:** To recognize that access to safe and sufficient water and sanitation are basic human needs and are essential to health and well being, and to empower people, especially women, through a participatory process of water management.
2. **Securing the food supply:** To enhance food security, particularly of the poor and vulnerable, through the more efficient mobilization and use, and the more equitable allocation of water for food production.
3. **Protecting ecosystems:** To ensure the integrity of ecosystems through sustainable water resources management.
4. **Sharing water resources:** To promote peaceful cooperation and develop synergies between different uses of water at all levels, whenever possible, within and, in the case of boundary and transboundary water resources, between states concerned, through sustainable river basin management or other appropriate approaches.
5. **Managing risks:** To provide security from floods, droughts, pollution and other water-related hazards.
6. **Valuing water:** To manage water in a way that reflects its economic, social, environmental and cultural values for all its uses, and to move towards pricing water services to reflect the cost of their provision. This approach should take account of the need for equity and the basic needs of the poor and the vulnerable.
7. **Governing water wisely:** To ensure good governance so that the involvement of the public and the interests of all stakeholders are included in the management of water resources.

The four other challenges have emerged through further interactions amongst policy-makers and other stakeholders and included in the World Water Development Report. These challenges are:

8. **Water and cities:** Covering issues of urban areas and human settlements and their specific

challenges to water management.

9. **Water and industry:** To focus on industry needs in water and the responsibility to respect water quality and to take account of the needs of competing sectors.
10. **Water and energy:** To recognize that water is vital for all forms of energy production and the need to ensure that energy requirements are met in a sustainable manner.
11. **Ensuring the knowledge base:** To recognize that good water policies and management depend upon the quality of knowledge available to decision-makers.

“People don’t want to live in reality.” But reality has a way of forcing its way into human consciousness, and sooner or later we must acknowledge that our relationship to water is intimate, complex, and primal: if we abuse it, we inevitably suffer the consequences. Remove trees from the watershed, and the river below floods; deplete aquifers, and the land above subsides; pollute or obstruct the river, and the effects flow all the way to the sea. We must accommodate ourselves to water, not the other way around. Jacques Leslie

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