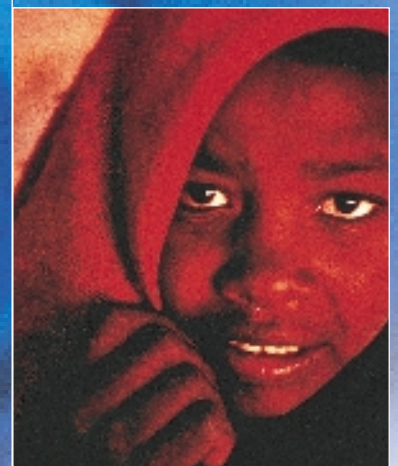


*...by 2025, every person in  
the region has access to  
safe drinking water for*

## **Our Vision for Water in the 21st Century**

*basic needs and food  
security, the water  
environment protected,  
and poverty alleviated.*





# WEST AFRICA

## Water for the 21st Century: Vision to Action

### SUMMARY

The importance of water for socio-economic development cannot be over emphasised. It forms a vital part of social infrastructure, playing a key role in agriculture, health, energy and general consumption for human welfare for which there are no substitutes .

Water is essential for all forms of life, yet the amount of water that is available is limited. The effects of climate change are already apparent in most parts of the Continent through the decrease of precipitation and increase in the frequency of droughts and floods.

Global environmental changes brought about by land use modifications, desertification, and anthropogenic greenhouse gas emissions are intimately connected with water and land surface. The ultimate impact of such changes is highly uncertain and difficult to predict.

The West African Region, despite its substantial water resources, experiences chronic shortages owing to uneven distribution of rainfall and water over time and space, underdevelopment of potential water resources and poor management of existing resources.

### Vision Statement

*By 2025, water resources are managed efficiently and effectively in an environmentally sustainable manner so that every person in the region has access to safe drinking water for basic needs, has safe excreta disposal facilities, food security, poverty is alleviated, human health is protected, and also the bio-diversities of the terrestrial and aquatic ecosystems protected.*

### Vision Elements

#### Water for Food

The population will be over 500 million in 2025, up from over 200 million 1995, with an average annual growth rate of 3.0%. Food security achieved by all, and optimum nutritional supply of 2700 kcal/day/person will be achieved. Food self sufficiency will be achieved in roots and tubers, vegetables and cereals except for wheat.

Present arable land is 2.555 million ha, with 16% under irrigation. The remainder lies under rainfed conditions. The percentage of the irrigable land actually under irrigation is 25%.

The water withdrawn in 1995 for irrigation was 8.569 billion m<sup>3</sup>. According to FAO (1999) increasing land under irrigation four fold will not create a water crisis since the annual water availability in 2025 will

be 2570 m<sup>3</sup> when the global renewable water resources are considered, and 2110 m<sup>3</sup> when the internal renewable water resources are considered.

#### **Water for people**

Potable water coverage in rural areas in 1995 ranged from 8% to 89%. The urban population coverage ranged from 36% to 92% while the coverage of sanitation in the rural areas ranged from 41% to 1%. In the urban areas, the range was 100% to 12%. The Vision is that by 2025, all people have access to:

- › potable water supply to meet their basic needs
- › sanitary excreta disposal facilities.

#### **Water for Nature**

Water resources will be under pressure in the face of increased economic activities. Initially, the land will be used more and abstraction and waste loads will increase. Consequently, water resources may be depleted, pollution increased and stress caused.

The impact on humans and bio-diversity in aquatic ecosystems may or may not be predictable. The Vision for 2025 is that protection of the water environment will have been achieved.

#### **Integrated Water Resources Management**

In 1995, the total withdrawal of water for domestic, industrial and agricultural purposes in the region was 11.380 billion m<sup>3</sup>. This is expected to increase to some 59 billion m<sup>3</sup> by 2025. In any case, the annual per capita global water availability in 1995 was 5730 m<sup>3</sup>. No country was below the water stress line of 1700 m<sup>3</sup>.

In 2025, the annual water availability per capita for global and internal renewable water resources will be 2570 m<sup>3</sup> and 2110 m<sup>3</sup> respectively. As a region, it will neither be under stress nor experience scarcity. However, there are internal differences.

Based upon the global conditions, six countries will be under stress. One country (Burkina Faso) will experience water scarcity because the per capita available water will be 700 m<sup>3</sup> which is below the 1000 m<sup>3</sup> level that manifests water scarcity.

Under the internal conditions, ten countries will experience water stress by 2025 and six countries — Benin, Burkina Faso, Ghana, Mauritania, Niger and Nigeria — will experience water scarcity.

The Vision is that by 2025, effective management is in place to ensure sustainable use of water resources.





## BACKGROUND

### Socio-economic context

The Socio-economic context of the West African sub-region was summarised by the West African Conference on Integrated Water Resources Management, Ouagadougou, March 1998 as follows:

There are 16 countries within the sub-region:

- › 12 coastal countries: Benin, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mauritania, Nigeria, Senegal, Sierra Leone, Togo;
- › Four land-locked countries: Burkina Faso, Mali, Niger;
- › One island state: Cape Verd.

The surface areas vary by a factor 1 to 300 between the smallest territory (Cape Verd) and the largest (Mali). The populations show similar proportions: Nigeria is 260 times more populated than Cape Verd.

In spite of these disparities, these West African countries have many common features such as geology, geography, populations, culture as well as economies and social conditions which place them all in the group of developing countries. Thus, a number of characteristics are common for the countries: High growth of populations, young populations, high (and weakly controlled) urbanisation rate, predominance of the agriculture sector in the national economies, and weak human development.

The total population of the sub-region is over 200 million inhabitants with an average density of 32.4 inhabitants per square kilometer (inh/km<sup>2</sup>). The highest population density is found in Nigeria (109.3 inh/km<sup>2</sup>), and the lowest in Mauritania (2.2 inh/km<sup>2</sup>). The total population is expected to exceed 450 million in the year 2025. For the sub-region as a whole, 41% to 49% of the population has an average age of less than 15 years.

The majority of the population is employed in agricultural activities, but the rate of urbanisation is high in all countries. Today, the urban populations represent 20% to 50% of the populations and it is expected that the urban population will be highly dominant by the year 2025.

The annual income per inhabitant ranges from USD1000 (Cape Verd) to USD200 in Liberia. Ordered by the UNDP index for human development, the West African countries are found between the 123rd and 175th countries. It is estimated that 62% of the urban population and 40% of the rural population had access to potable water supply in the West African region in 1995. Also 59% of the urban population and 25% of the rural population had access to safe excreta disposal facilities. The consequence is that the health of majority of the population are affected by water-borne and water-related diseases like malaria, guinea-worm, cholera, typhoid, bilharzia and so on.



Food production to meet the nutritional needs of the population in the region is mainly under rainfed conditions. The irrigation potential is 9.895 million hectares, 16% of the total arable land.

The main food crop produced under irrigation is rice. Vegetables, pineapples and bananas are also grown under supplementary irrigation. Other cereals grown are maize, millet and sorghum for which the regions is self sufficient. The rice grown forms about 63% of the rice requirement of the sub-region. The average food supply is equivalent of 2430 kilocalories per day per person.

### Hydrological Context

The climates range from humid equatorial at the coast to desert climates in the northern sahelian countries. Some of the countries are well endowed with water resources, whilst others face serious scarcity problems. Hydrologically, the sub-region is drained by three major basin systems which are shared as follows.

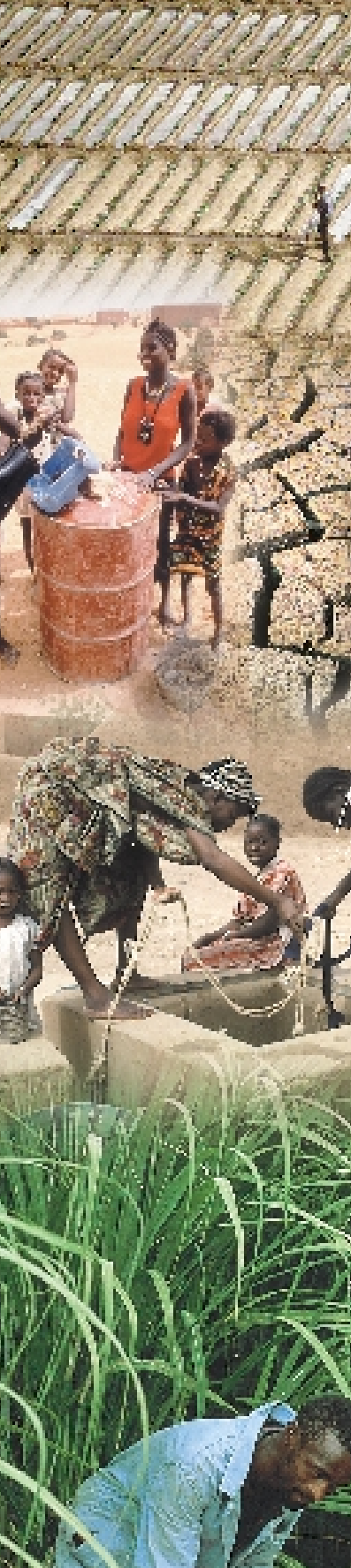
The Niger basin where the main river (more than 4,100 km) drains a basin of 2,090,000 km<sup>2</sup> representing one third of the total surface area of the sub-region, and involve nine of the sixteen plus Cameroon and Chad. The Lake Chad Basin is fed by the Chari river and its tributaries coming from the mountain areas of Central Africa (Cameroun and Centrafrique). The rivers coming from the west (Niger and Nigeria) contribute little to the lake since they are strongly seasonal and have limited flow. It is shared by 5 countries. The other most important basins are, from west to east:

- The Senegal (1609 km, basin of 440,000 km<sup>2</sup>, shared by 4 countries)
- The Gambia (1127 km, shared by 3 countries)
- The Bandama (97500 km<sup>2</sup>, only Côte d'Ivoire)
- The Comoe (shared by 4 countries)
- The Volta (1900 km, shared by 5 countries)

Thus, except for Cape Verd, all countries in the sub-region share surface water resources with one or more other countries.

There are three major types of groundwater aquifers in the region; basement aquifers, deep coastal sedimentary aquifers, and superficial aquifers. The availability of the groundwater varies considerably from one type of substrate to another and to the local levels of precipitation and infiltration which determine the actual recharge. In areas where the groundwater availability is low, the water supply is highly dependent on surface water resources. The agricultural sector is the largest consumer of water in the sub-region. In 1995, it accounted for 76% of the water abstracted while domestic and industrial water uses accounted for 17% and 7% respectively. In all countries the growth rate in demand for water is higher than the economic growth rate.





### Environmental Context

Climate (rainfall) variability and seasonal changes creates drought and serious water shortages in some areas, particularly in the Sahel region, and rainfall has been decreasing in the region since the 1970s.

Deforestation of the rain forest is occurring due to harvesting of vegetation for fuel wood, timber, food, and medicines. Also, large parts of the region are affected by desertification which is moving southwards.

Depletion of water resources, particularly groundwater in the coastal areas and in some sahelian countries, occurs as a result of over-exploitation for domestic livestock and irrigation. Human settlements, agriculture, industry and mining are contributing towards the degradation of the quality of our surface and groundwater resources.

### Constraints and Reforms

There are a number of key constraints to sustainable water resources exploitation in the sub-region. The population, estimated at 200 million today, is increasing at a yearly rate of 3%, which translates into an increase in the demand of potable water of more than 6%.

The increase in demand of water for irrigated agriculture is partly due to the lack of self-sufficiency of rain-fed crops for food security and partly because of the development of cash crops. The growth in economic development is accompanied by an increase in demand for water for industries and energy.

The climatic situation, characterised by the spatial and temporal irregularity of precipitation, is aggravated by decreasing quantities of precipitation, which means that the run-off deficit can reach 70% in certain river basins in the region. This is aggravated by the pollution caused by human activities (domestic, agricultural, industrial).

There is a shortage of financial resources for monitoring and improving knowledge about the resources, and for procurement of equipment for production of water and for sewerage treatment plants compared to the increase in demand. Further, there is an inadequate capacity and availability of suitable tools for management — political, legislative and regulatory, financial, scientific and technical.

The scattered efforts to address these problems lack co-ordination and synergy between the various sectors within each country, and between the countries in the region. And there is fragmentation of institutional responsibilities and a lack of appropriate national legislation.

Nearly all of the countries in West Africa have adopted water laws, but the laws are not implemented. Often they have become obsolete even before the accompanying regulations have been adopted. This situation is aggravated by political instability due to armed conflicts and ethnic strife, and inadequate popular and grass root participation in decision making.

In the face of the above constraints, countries in the sub-region have been

introducing various reforms — economic, political, water resources — especially since 1990. These include economic reforms targeted at reducing government expenditure, balancing budgets, stabilising interest, inflation, and exchange rates, liberalising trade, and removing subsidies.

Development of public/private sector partnerships are aimed at ending government participation in economic activities and to create an environment for the private sector to invest and become the engine of growth. Improving governance is being addressed by decentralisation of government administration and devolution of power to the grass roots and encouraging accountability.

Also, diagnostic studies are being conducted to address environmental problems with the introduction of action plans and environmental impact assessment, while reforms in dealing with water resources are aimed at institutions, capacity building, financial sustainability and protection of the environment at national and sub-regional — shared river basin — levels.

### Opportunities

In fashioning a new vision for water and the environment, the sub-region will capitalise on opportunities which have recently emerged or are emerging. These include the new policy of ECOWAS to concentrate on developments that will bring armed conflict and ethnic strife in the region under control; the recommendations of the West African Conference on Integrated Water Resources Management to introduce reforms in the management of water resources at national and trans-boundary levels; the initiatives for co-operation and collaboration taken by the many sub-regional organisations to combat desertification, co-operate in research, education and training, and create an economic and monetary union.

### Summary of Framework for Action

A summary for the Framework for Action is provided below. This shows the constraints, or challenges that have to be confronted, together with the actions to achieve the Vision and its elements.

#### THE CHALLENGE:

##### Creation of Stable Economic Environment

#### ACTIONS:

- › Process primary commodities for export.
- › Diversify export base.
- › Reduce Government spending and balance budgets.
- › Control interest, inflation & exchange rates.
- › Mobilise domestic savings for investment.
- › Create incentives for private sector investment.





### **THE CHALLENGE:**

#### **Improvement of Socio-Cultural Life**

##### **ACTIONS:**

- › Reduce rate of population growth.
- › Improve education.
- › Redistribute wealth to bring about equity.
- › Create awareness about water issues.
- › Create correct awareness of gender issues on water.

### **THE CHALLENGE:**

#### **Institution of Good Governance**

##### **ACTIONS:**

- › Reduce and eliminate ethnic and political conflicts.
- › Strengthen constitutional government.
- › Promote citizen participation (including gender aspects) in decision making, ownership, operation and maintenance.
- › Decentralise and devolve power to communities.
- › Strengthen and make institutions accountable and transparent at all levels.

### **THE CHALLENGE:**

#### **Coping with Climate Variability and Change**

##### **ACTIONS:**

- › Intensify monitoring and research on the climate.
- › Invest in water conservation infrastructure.
- › Develop policies to respond to research findings.

### **THE CHALLENGE:**

#### **Improving Knowledge about Land and Water Resources**

##### **ACTIONS:**

- › Intensify monitoring of water resources land cover and land use.
- › Update evaluation of land cover and land use.
- › Update assessment of water resources.





- › Support research and information dissemination on land and water resources.
- › Create synergy and partnership among countries and institutions in the management of transboundary water resources. (Responsibility for action should be by national and regional institutions).
- › Co-ordinate, harmonise and exchange information and experience in the field of integrated water resources management (Responsibility for action should be by national and regional institutions).

### **THE CHALLENGE:**

#### **Reforming and Restructuring Institutions**

##### **ACTIONS:**

- › Review adequacy relevance and effectiveness of institutional and legal infrastructures for land and water resources management at national level:
  - Transboundary Level particularly existing River/ Lake Basin Organisations to:
    - avoid overlap of functions;
    - establish central co-ordinating body for water resources management
    - structure institutions in such a way that at local level, communities are involved in decision making about technology are owners and take responsibility for operation and maintenance and contribute to investment cost;
    - prepare guidelines and procedures for undertaking land and water development projects;
    - prepare multi-objective criteria for appraising and approving projects for implementation;
    - promote integration of water resources development in the socio-economic of ECOWAS;

### **THE CHALLENGE:**

#### **Improving Water Resources Planning Allocation and Regulation**

##### **ACTIONS:**

- › Allocate water resources (surface and ground-water) for agriculture, energy, navigation recreation etc.
- › Allocate water resources for maintain life in aquatic terrestrial, coastal and wetland ecosystems.
- › Resolve conflicts in water use.
- › Regulate discharge of agricultural, industrial and human settlement wastes into water resources.





### **THE CHALLENGE:**

#### **Improving Land Use Planning, Allocation and Utilisation**

##### **ACTIONS:**

- › Carry out land suitability and land capability assessment.
- › Allocate land for various purposes - agricultural, industrial and human settlements.
- › Regulate allocation of land for various uses.
- › Promote sound land use practices to abate or eliminate land and water resources degradation.
- › Review land tenure system and adopt policies to provide incentive for tenants to invest in land preparation.

### **THE CHALLENGE:**

#### **Achieving Economic and Financial Sustainability of Investments in Water Projects**

##### **ACTIONS:**

- › Prepare strategic investment for the water sub-sector to meet demands for:
  - water supply and sanitation (urban & rural);
  - irrigated agriculture;
  - hydropower etc.
- › To cover rehabilitation of existing systems.
  - new systems;
  - improve operational efficiencies
  - including reduction of system losses;
  - recovery of degraded aquatic ecosystems
  - improve degraded land
- › Adopt water tariff that enable investment, operation, maintenance, replacement/rehabilitation costs to be recovered if not immediately, over an agreed time frame.
- › Structure tariffs in such a way that the disadvantaged can afford to pay for their basic requirements.

### **THE CHALLENGE:**

#### **Building Capacity of Stakeholders and Institutions**

##### **ACTIONS:**

- › Educate and train various stakeholders in integrated water resources management (including the gender aspects): Policy makers, (Parliament Executive Judiciary), Executives, Planners, Administrators, opinion leaders, community members etc.
- › Improve the capacity of institutions to carry out their functions.

### Vision to Action

Water is widely mismanaged and unless we change our ways of managing this resource, we will face a serious crisis in the near future. The actions detailed above to redress this situation in West Africa are derived from the document, **Water for the 21st Century: Vision to Action – West Africa**, which was prepared for presentation at the Second World Water Forum and Ministerial Conference at The Hague, the Netherlands, March 17-22, 2000. The consultations resulting in this document were coordinated by the West Africa Technical Advisory Committee of the Global Water Partnership.

The Vision was prepared under the guidance of the World Water Commission on Water for the 21st Century – an initiative of the World Water Council. Development of the corresponding Action plans was executed by the Global Water Partnership (GWP).

The Vision to Action process was designed to be as broad-based as possible. Consequently, the building blocks for the development of the Vision and Action documents were constructed through consultations over the last 18 months with the principal stakeholders in the major regions of the world.

Through regional meetings and workshops this consultation process brought many experts together – government agencies, key water practitioners, UN agencies, donors, the private sector, and others – to establish a shared view of appropriate strategies, mechanisms for implementation, and priorities for immediate action and investment. The participatory nature of the whole process will deliver new hope for sustainable water management in the new millennium.





The Global Water Partnership (GWP) facilitates the exchange of knowledge and experience, and the practice of integrated water resources management. Through a worldwide network of partners, GWP identifies critical knowledge needs at both global and regional levels, helps design programmes for meeting these needs, and serves as a marketplace for providers and financiers of the required knowledge services.

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