NEPAD

New Partnership for Africa's Development

MAIN REPORT (Draft)

Short-Term Action Plan
Infrastructure

May 2002

EXECUTIVE SUMMARY

1. INTRODUCTION

One of the main priorities of NEPAD is the promotion of regional integration in the continent because individual African economies are typically too small to generate the economies of scale that can be found in larger markets. Bridging the infrastructure gap has been identified as an important element of promoting regional integration in Africa. Infrastructure is defined in this context as energy, water, transport, and information and communications technology (ICT).

The development of regional infrastructure is critical for sustaining regional economic development and trade. The potential for promoting regional integration in Africa through the sharing of the production, management and operations of infrastructure facilities and through hubs, development corridors or poles is considerable.

While the overall picture is one of lagging coverage, poor maintenance, weak financing and inefficient management, there are differences across countries. Many countries have been able to upgrade and expand their infrastructure assets and improve services through a combination of policy changes, institutional reforms and investments. Over the last decade the movement of reform to decentralize and move away from the public sector monopoly model, has gained momentum in all infrastructure sectors. As governments withdraw from direct provision of services, they face the challenge of establishing regulatory frameworks that foster fair competition, support the emergence of regional markets and ensure that the end users obtain the expected benefits.

In developing an action plan, the approach adopted by NEPAD is two-pronged: a short-term action plan has been developed based primarily on a survey of the infrastructure projects and initiatives in the countries and included in the programs put forward by the regional economic communities (RECs). For the short term plan, the main emphasis has been on selecting projects and initiatives with a strong facilitation element. The project selection process was guided by the following criteria: projects that are at an advance stage of preparation and that can be fast-tracked; projects that support both a regional approach to infrastructure provision and regional integration; projects that have stalled for political reasons and where NEPAD's intervention could be expected to make a difference; and initiatives that offer solutions to regional policy, regulatory or institutional constraints to regional infrastructure activities. The Short-term Action Plan will be linked to and complemented by a Medium- and Long-term Action Programme that will take up projects and initiatives that require more time for preparation and development.

For each of the infrastructure sectors, the Plan contains a brief statement of overall objectives linking the sub-sector with the overarching goal of reducing poverty. Next the Plan reviews the problems and challenges facing the sector and outlines the response under NEPAD. The four common areas covered in the Plan are: (i) facilitation – establishment of policy, regulatory and institutional framework to create a suitable environment for investment and efficient operations; (ii) capacity building initiatives to empower particularly the implementing institutions to meet their mandates; (iii) physical or capital investment projects; and (iv) studies to prepare new priority projects.

The role of NEPAD in ensuring the successful implementation of the Short Term Action Plan will be: a) Mobilising political will and actions to implement policy and institutional reforms in the sectors, including harmonising regulatory systems, and ratification of agreements; b) Facilitating the mobilization of resources for regional projects by pooling of resources of the countries concerned and by enlarging the participation of the private sector in operations as well as in financing of infrastructure; and c) Facilitating knowledge sharing, networking and dissemination of best practices among countries, RECs and technical agencies.

Underpinning all NEPAD infrastructure programs will be the objective of strengthening or developing *sector governance* arrangements that are rule-based, predictable, transparent and participatory. A peer review mechanism will be established to monitor implementation of the Plan and to identify any areas requiring specific intervention to speed up action. The principal aim will be to create the enabling environment for enhancing competitiveness and stepping up the flow of investments.

The NEPAD program in infrastructure is not a new set of initiatives. What NEPAD brings is a new vigour to accelerate the response to familiar problems and to implement tested policies and good practices. The new sense of urgency is embodied in the Africa leadership's collective commitment and determination to urgently mobilize and harness all resources available to speed up economic growth and social development and, thus, eradicate poverty.

Due to the nature of the Short-term Action Plan, it does not contain all the projects proposed by the RECs, nor does it set out to achieve balance between regions in Africa. It is to be interpreted rather as the first stage in a rolling action plan that will be updated periodically as and when better information becomes available**.** The Medium- and Long-term Action Programme will be much more comprehensive.

2. ENERGY SECTOR

The challenge for NEPAD's Energy Infrastructure Initiative is to develop fully the energy resources of the continent in order to deliver affordable energy services to economic and social sectors. This will enhance economic and social development and improve the standard of living of the continent's population. Under the Initiative, the continent's rich energy resources will be developed through regional cooperation. Guaranteeing a sustainable supply of affordable energy will contribute to a significant reduction in poverty, inequality, and environmental degradation. The projects identified in the Short Term Action Plan will support sustainable energy development, and serve as building blocks for the realization of medium- to long-term goals.

The Facilitation Project will promote reforms and cooperation among African countries, donors and the private sector for energy infrastructure development. The preparation and implementation of an Energy Protocol will assist in attracting more, less costly investment, as it will include establishing legal, regulatory and institutional frameworks, assisting in providing the necessary enabling environment to attract investors. This will help to reduce the risks and enhance the perceptions of investors with respect to private sector investments.

The Plan also includes power system and gas/oil projects that are ready for implementation. In addition, studies will be undertaken for physical projects that will be implemented in the medium to long term. The Capacity Building Project is

intended to operationalise and strengthen the African Energy Commission (AFREC) and build capacity in the sub-regional organizations. As regards AFREC, it is intended to transform the institution into a legal entity through the ratification of the Convention and operationalise it through the appointment of the Board and the Technical Advisory Body by providing the appropriate technical support to discharge its responsibilities. The project would also provide technical support to the sub-regional organizations to strengthen their capacity in the formulation and implementation of regional policy, as well as strategy formulation, and preparation and implementation of regional programs. The Capacity Building and Facilitation Projects will be undertaken by the countries with support from AFREC in collaboration with RECs.

A key role of NEPAD would be in particular to support the strengthening of AFREC. Other important roles of NEPAD relate to facilitating cooperation and conclusion of agreements, monitoring implementation of projects. It is expected that NEPAD would assist in putting into place the necessary energy institutions, frameworks, structures, policies and strategies to further public-private partnerships for development of the energy sector.

3. WATER AND SANITATION

Sustainable use of available and finite water resources is essential for the socio-economic development of the continent and for eradicating poverty. The available resources have to be harnessed to meet the growing basic needs of water supply and sanitation for a large number of Africa's population, contribute to food security through use of water for irrigation, and also be able to tap the available renewable hydropower potential of the continent, required to drive its industries.

Some of the critical issues which need to be addressed in order to accelerate the development of the Africa's water resources include: (i) the adoption of effective national and regional policies and institutional frameworks based on the principle of integrated water resources management (IWRM), (ii) the establishment of collaborative framework on agreements to facilitate the management and development of shared water resources, (iii) capacity building; and the urgent need for improved water wisdom. While absorptive capacity is a limiting factor in some areas, inadequate funding remains a major constraint for the sector development: it is estimated that US$20 billion annually would be required to meet the continent's Millennium goals.

In response to the challenges facing Africa in the water sector, the African Water Vision for 2025 has been developed 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.

The proposed programmes/initiatives included in the Short Term Action Plan are fully in support of the Africa Water Vision and its Framework for Action. Accordingly, the proposed programmes and projects included in the Short Term Action Plan are fully in support of the Africa Water Vision and its Framework for Action. They address the following themes: a) enabling environment for regional co-operation; b) support for the development of national IWRM policies; c) meeting urgent water needs; d) improving water wisdom; and e) strengthening the financial base for the desired water future.

Some of the proposed short-term interventions are either just entering the implementation phase or are at an advanced level of preparation.

NEPAD support will be in the form of mobilizing political commitment, bringing to bear peer review using independent organizations or annual review reports on progress made by countries or regions in achieving selected targets, and facilitating the mobilization of funding required by some of the proposed programmes.

4. TRANSPORT

The goal of the NEPAD transport program is to close Africa's gap in transport infrastructure and services, by: a) Reducing the costs and improving the quality of services; b) Increasing both public and private financial investment in transport infrastructure; c) Improving the maintenance of transport infrastructure assets; d) Removing formal and informal barriers to the movements of goods and people; and e) Supporting regional cooperation and the integration of markets for transport services.

NEPAD's role in the transport sector will be to provide strategic leadership by mobilizing political support and financial resources to pursue needed reforms and to launch programs and projects in support of regional integration and overall competitiveness. NEPAD will promote innovative approaches to mobilize resources to develop infrastructure along *regional corridors* to facilitate trade and to open up previously isolated regions. NEPAD transport objectives will be pursued under programs targeting specific institutional constituencies.

The NEPAD transport program has been developed along five broad themes, namely, a) trade corridors without borders and barriers; b) better and safer roads to bring Africa together; c) competitive and seamless rail services; d) efficient ports and safe seas and ports; and e) safe, secure and efficient skies and airports.

The goal of ***trade corridors without borders and barriers*** is central to the NEPAD transport agenda as cumbersome and unpredictable clearance procedures in the ports, at border crossings, and at inland terminals, as well as unnecessary road checks, are a major source of delays and costs along trading routes particularly along the corridors serving landlocked countries. The role of NEPAD will be to accelerate the implementation, by member States, of existing agreements and protocols to eliminate non-physical barriers and help RECs to set benchmarks and seek compliance through the NEPAD peer review mechanism.

The goal of ***better and safer roads to bring Africa together*** will be pursued by accelerating the development of regional networks and by strengthening the capacity for sustainable road management. The first priority will be to support road sector development programs (RSDPs) based on the network management approach and on institutional arrangements to ensure reliable funding of maintenance and accountability to users. The medium term goal is to bring the number of countries that are implementing or preparing RSDP from 15 at present to at least 25. Increased investment in regional roads will be pursued under the framework of sub-regional programs prepared by the RECs. NEPAD will support the development of guiding principles for planning and financing the upgrading of roads along regional corridors.

The immediate major challenge for railways is to reverse the historical poor management of most national public railways.

The goal of ***competitive and seamless rail services*** will be pursued through

institutional reforms combined with investments. NEPAD will also support joint or coordinated concessions and cross shareholdings across borders as well as well as the integration of railway services in multi-modal logistic chains.

In order to fulfill their role as Africa's gateway to rest of the world, regional ports need to improve their performance and modernize their operations. The goal of ***efficient ports*** will be to align the performance of all African ports with the best among them specifically by reducing container clearing time by half or to the five-day benchmark by year 2006. The component for ***safe seas and ports*** includes measures to protect Africa's seaboard from the risks of maritime pollution and to ensure the safety of its ports. NEPAD will foster multi-country approaches to capacity building and environmental preparedness.

The goal of ***safe, secure and efficient skies and airports*** is to lower the cost of air travel and freight, to reduce the isolation of Africa in the air transport market, and to improve safety on the ground and in the air. The first objective will be to consolidate the Yamoussoukro Decision through support directed at sector reform, airline privatisation, regulatory capacity, restructuring of civil aviation services and upgrading of aviation infrastructure. The safety and security agenda will be supported through the implementation of: (i) a regional UACC (Upper Air Space Control Center) project; (ii) two regional GNSS project (Global Navigation Satellite System); (iii) measures to comply with ICAO security standards; and, (iv) joint safety oversight inspection capacity (COSCAP). At the political level the NEPAD peer review mechanism will support the implementation of the Yamoussoukro Decision. NEPAD will also help to build consensus for joint action regarding in particular modern upper air space control centers.

Political commitment at high levels will be a powerful driver for NEPAD objectives, in transport, however in order to obtain rapid progress on the ground, the delays and the problems that have plagued regional initiatives will have to be overcome. NEPAD will pursue the establishment of a ***Regional Transport Reform and Integration Support Facility for Africa*** (TRISFA). The proposed facility would be set up as a trust fund modelled along the lines of the Private Participation in Infrastructure Advisory Facility (PPIAF) and would be demand driven. It will offer punctual support to RECs and agencies engaged in NEPAD transport programs.

5. INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICTS)

The problem of inadequate access to affordable telephones, broadcasting services, computers and the Internet in most African countries is due to the poor state of Africa's ICT infrastructure, the weak and disparate policy and regulatory frameworks and the limited human resource capacity in these countries. Although African countries, in recent years have made some efforts to facilitate the ICT infrastructure deployment, roll-out and exploitation process in a number of areas, Africa still remains the continent with the least capability in ICT and least served by telecommunication and other communications facilities.

The threat posed by the digital divide to the rapid development of African countries can on the whole be attributed to their inability to deploy, harness and exploit the developmental opportunities of ICTs to advance their socio-economic development. There is therefore an urgent need to put in place and implement ICT

initiatives to bridge the digital divide at four levels namely: (i) bridging the divide between the rural and urban areas within a given country: (ii) bridging the gap between countries of a given sub-region, (iii) bridging the inter-regional gap and (iv) bridging the gap between Africa and the rest of the world.

To address these challenges, the Plan proposes three broad areas of programs for implementation under Short-term Action Plan; namely: *ICT Infrastructure Development and Roll-out Projects*; *ICT Infrastructure Development and Roll-out Facilitation Projects*; and *ICT Infrastructure Exploitation and Utilization Initiatives.* A number of projects and initiatives have been identified for implementation under each of these three broad program areas.

First, five ICT physical infrastructure development projects to speed up the process of sub-regional and regional connectivity and inter-connectivity are identified for implementation under the Plan.

Second, five sub-regional and regional initiatives directed at facilitating the ICT infrastructure development, deployment and rollout process have been identified. These include: harmonizing the regulatory framework and environment across the sub-regions; developing the necessary human resources; facilitating the effective participation of African countries in global ICT policy and decision making; and strengthening regional institutions mandated to support ICT infrastructure development, roll-out and deployment activities on the continent.

Finally, to facilitate the wide deployment, exploitation and utilization of ICTs within the societies and economies of Africa, six continental umbrella initiatives are identified for implementation namely: African SCAN-ICT and E-Readiness Initiative, The African Regional Telemedicine Initiative, The Electronic Governance & Government Initiative for Africa, The African Electronic Commerce and Trade Initiative, The African Regional Tele-education Initiative and The Africa Content Development Promotion Initiative.

The Plan provides details of the broad institutional arrangements required for facilitating the implementation of the projects and initiatives identified under the three broad program areas. The roles that NEPAD will play in facilitating the implementation of the projects of the short-term plan are also detailed. Specifically, NEPAD will: (i) promote the projects and initiatives both within and outside Africa; (ii) in consultation with the various sub-regional and regional stakeholders of each of the initiatives identify the effective ways and means by which to support and speed up the implementation of each of the initiatives within the time-frame of the Plan and (iii) facilitate the mobilization of the required financial resources from both domestic and external sources to speed up the process of implementation of the projects. Issues relating to the risk factors associated with each of the project areas identified for implementation are also addressed in the Plan.

6. PUBLIC PRIVATE PARTNERSHIP (PPP) IN INFRASTRUCTURE DEVELOPMENT

Public-Private Partnerships (PPPs) have emerged over the last decade as one of the best ways to foster development, fuelled by insufficient investment, growing pressures on government budgets and a general concern about service provision by state enterprises and agencies. PPPs have taken place mainly in economic (physical) infrastructure, such as power, transport, telecommunications, and water and

sanitation. The desire for greater efficiency and better services, as well as the limited volume of public resources available to finance such services are now increasingly leading governments to embrace public-private partnership approach. In developing countries, the total level of PPP's in infrastructure grew from US$ 16.6 billions in 1990 to over US $95 billion by 1998. However, in Africa, the value of transactions and number of countries with PPP projects are still limited. Over the 1990-98 period, Africa accounted for about US$ 14 billion of the total investment of US$ 496 billion made in PPP projects in developing countries, as compared to US$ 237 billion for Latin America and Caribbean region.

In order for more PPPs to emerge in Africa, countries need to improve the business environment. At present serious constraints exist in many countries. These constraints are: inadequate legal and regulatory framework for PPPs; lack of technical skills to manage PPP programmes and projects; unfavourable investor perception of country risk, Africa's limited role in global trade and investment, small market size, limited infrastructure, and limited financial markets.

NEPAD will encourage governments to undertake needed reforms to improve the business climate. This would include liberalization of investment, trade, and prices, promoting competition, creating deeper and broader financial markets, tax reforms, ensuring that commercial law protects property rights.

Furthermore, NEPAD will encourage and assist African governments to create the necessary legal and regulatory framework for PPPs by assessing existing laws affecting PPPs and drafting the Law on PPPs and regulation, drafting model PPPs contracts. NEPAD will also encourage and assist countries to establish Regulatory bodies in countries where they are absent as well as facilitating networking and sharing of experience among regulatory agencies and other similar organizations.

Where required, NEPAD will encourage and assist countries to create PPP technical units staffed with relevant and skilled personnel (legal, financial, economic, procurement and technical expertise) with capabilities to plan and execute PPP programs. In addition, NEPAD will facilitate collaboration and exchange of experience in PPPs between technical units of countries as well as the dissemination of information on good practices.

7. PREPARATION OF THE MEDIUM - LONG TERM ACTION PLAN

A Medium-Long Term Action Plan (MLTAP) study will be undertaken to complement and supplement efforts undertaken within the Short-Term Action Plan. It would unfold over an 18-month period starting in 2003. The principal objectives of the MLTAP will be to:

- To prepare *medium to long term strategy for sectors* or sub-sector to attain specific service and coverage standards for each *sub-region*
- To develop *medium term programs* to implement the strategy with measures in the three areas of sector policies and institutional reform, investment and sector financing, capacity building.
- To prepare a *regional overview* on the basis of the sub-regional programs including support measures and initiatives to speed-up implementation and facilitate coordination among NEPAD partners.
- To prepare address *cross cutting themes*: governance and regulation, financing and pricing, capacity building and knowledge networks.
- To establish an *Africa Infrastructure Database* and develop plan for its

upkeep.

The proposed cross cutting study on financing of infrastructure under NEPAD is particularly important. This is because all sub-sectors call for an increase in commercial financing but the fact is that the mobilization of private financing has been slow and sparse. Very little has been mobilized on the domestic markets. NEPAD will pursue the development of instruments to facilitate the channelling of private financing into infrastructure programs. Specifically, the financing study will review the following issues: a) guarantee and insurance schemes; b) mobilisation of domestic resource for long-term finance; c) financing for regional multi-country projects; and d) leveraging of public funds. The study will also review the emerging African experience with regulation; specifically: a) distribution of responsibilities between regulator and sector agencies; b) statutes, tenure, financing of regulatory bodies; c) multi-sector vs. single sector regulators; and d) regional regulation in telecom, air transport, cross-border power traffic etc.

The MLTAP study would be carried out by teams of consultants under the oversight of a steering committee comprising of RECs and the NEPAD Secretariat, and a coordination unit at the AfDB. An advisory panel would provide quality assurance.

8. WAY FORWARD

The first step will be to establish an effective institutional framework for implementation of the NEPAD programme. The **individual countries** constitute the nuclei of all programmes and implementation actions. Working with civil society and private sector, they are expected to internalise the NEPAD programmes in their development strategies such as the PRSP. The RECs as building blocks of the OAU/AU, the parent body of the NEPAD initiative, form the sub-regional level planning, coordination and monitoring of the integration process. The OAU/AU is the apex body at continental level. For NEPAD, the OAU/AU has designated special committees, the Heads of State Implementation Committee (HSIC) and the NEPAD Steering Committee (SC), to drive the process. NEPAD have also designated specialised institutions, such as the AfDB and ECA, to assist it in the development and elaboration of specific initiatives and programmes.

Next Steps: The action steps envisaged following the completion of this report are classified in the following main themes:

a) **Processing and Securing of Endorsement the Report and Short-term Programme:** Among the major activities to be undertaken is the consultation with RECs and other designated agencies. This consultation will provide an initial opportunity to secure buy-in of these organisations, which are critical for successful implementation of the programme. Activities under this theme will be completed by 10 July 2002.

b) **Mobilising RECs and Implementation Agencies:** After endorsement of the programme by the OAU/AU, the RECs and other designated implementing agencies will be given implementation guidelines and instructions. Each REC will coordinate the elaboration of targets and key activities and time schedules for implementing programmes or projects it is involved with. The Secretariat, assisted by a designated specialised African Institution as the infrastructure coordinator, will synthesis the submissions of the RECs in order to harmonise them. Activities under this

theme will be completed by 15 December 2002.

c) **Mobilising Finance:** The responsibility to mobilise finance will be shared between countries, RECs and the NEPAD apex institutions. They will set in motion a fund raising machinery, which will include intermittent road shows, round tables or investment forums. This activity will be continuous.

d) **Implementing NEPAD Infrastructure Short-term Action Plan:** The proposed timing of implementation of the main components of the programme will thus be reviewed, according to availability of funds. Activities will continue over the whole plan period of 4-5 years.

e) **Establishing a Peer review and monitoring system:** The first action will be to set up a sector Peer Review and Monitoring System by September 2002.

f) **Undertaking a Long-Term Infrastructure Perspective Study:** The long-term perspective study is planned to overlap with the implementation of the short-term programme. The study process will thus also provide an opportunity to review and refine elements of the short-term plan, including the criteria for selection of projects, benchmarks and targets. It would unfold over an 18-month period starting in 2003.

Risks: A **Political Risk** that some countries may not pursue or delay implementation of NEPAD endorsed programmes will be mitigated through intensive engagement and actions to be determined within the framework of peer review. An **Institutional Risk** that the institutional framework may lead to elongated process, or that the capacity constraints will not be solved. NEPAD will avoid additional layers of bureaucracy and promote capacity building initiatives.

The **Financial Risk** that there will be delays in implementing projects due to lack of or delayed availability of funds will be mitigated by proactively addressing the concerns of potential financiers and investors.

Abbreviations and Acronyms

ADF	African Development Forum
AEP	African Energy Program (AfDB)
AfDB	African Development Bank
ABN	Niger Basin Authority
AIDS	Acquired Immune Deficiency Syndrome
AMCOW	African Ministerial Conference on Water
ASP	Africa Solar Program
ATU	African Telecommunications Union
AU	African Union
AWV	African Water Vision
BC	Beira Corridor
BOAD	West African Development Bank
BOT	Build Operate Transfer
BOOT	Build Own Operate Transfer
CBLT	Lake Chad Basin Commission
CD	Customs Department
CEMAC	Economic and Monetary Community of Central Africa
CEPGL	Economic Community of the Great Lakes states
COMESA	Common Market for Eastern and Southern Africa
COSCAP	Co-operative Development of Operational Safety and Enhancing Airworthiness Programme
DC	Development Corridor
DOT Force	United Nations Digital Opportunities Task force
DRC	Democratic Republic of Congo
DRCANSA	DRC-Angola-Namibia-South Africa (Interconnection Study)
EAC	East Africa Community
ECA	Economic Commission for Africa
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EIB	European Investment Bank
EU	European Union
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FFA	Framework For Action
GEF	Global Environmental Facility
GIRE	Integrated Water Resources Management
GDP	Gross Domestic Product
GNP	Gross National Product
GEF	Global Environment Facility
GENI	Global Energy Network Institute
HIV	Human Immunodeficiency Virus
HSIC	Heads of State Implementation Committee
HYCOS	Hydrological Cycle Observing System
ICD	Inland Container/Clearance Depot
ICT	Information and Communications Technology
ICW	International Conference on Water and Environment
IFAD	International Fund for Agricultural Development
IGAD	Intergovernmental Authority on Development

IMO	International Maritime Organisation
ISDN	Integrated Services Digital Network
ISM	International Safety Management
ITU	International Telecommunications Union
IWMI	International Water Management Institute
IWRM	Integrated Water Resources Management
LDC	Least Developed Countries
KM	Knowledge Management
LGP	Liquefied Petroleum Gas
MARPOL	International Convention for Prevention of Pollution from Ships
MC	Mombassa Corridor
MDC	Maputo Development Corridor
MDG	Millennium Development Goals
MOWCA	Maritime Organisation of West and Central Africa
MRU	Manu River Union
MU	Mepanda Uncua
NBI	Nile Basin Initiative
NC	Northern Corridor
NEPAD	New Partnership for Africa's Development
NRSE	New and Renewable Sources of Energy
NTO	National Telecommunications Organisation
OAU	Organisation of African Unity
OECD	Organisation for Economic Cooperation and Development
O&M	Operations and Maintenance
OMVG	Gambia River Basin Organization
OMVS	Senegal River Basin Organization
PAR	Project Assessment Report
PPIAF	Private Participation in Infrastructure Advisory Facility
PPP	Public Private Partnership
PV	Photovoltaic
QOL	Quality of Life
RASCOM	Regional African Satellite Communications Organisation
REC	Regional Economic Community
RMI	Road Management Initiative
RSA	Republic of South Africa
RSDP	Road Sector Development Programme
ROT	Rehabilitate Operate and Transfer
RTTP	Rural Travel and Transport programme
SADC	Southern African Development Community
SAPP	Southern African Power Pool
SARA	Southern Africa Railways Association
SATCC	Southern Africa Transport and Communications Commission
SODECI	Societe de Distribution d’Eau de La Cote d’Ivoire (Ivorian Water Utility)
SSA	Sub-Sahara Africa
SSATP	Sub-Sahara Africa Transport Policy
SDI	Spatial Development Initiative
STEM	Short-Term Energy Market (SAPP)
TAF	Technical Assistance Fund (ADF)
TAH	Trans African Highway
TKH	Trans Kalahari Corridor

TOR	Terms of Reference
TRISFA	Transport Reform and Integration Facility
UEMOA	West African Economic and Monetary Union
UMA	Union of the Arab Maghreb
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNTAD	United Nations Commission for Trade and Development
UNECA	See ECA
UN-ICT	United Nations - Information and Communications Technology
US/USA	United States of America
US$	United States Dollars
WAGP	West African Gas Pipeline
WAPP	West Africa Power Pool
WASH	Water and Sanitation for Health
WaSP	Water and Sanitation Programme
WEC	World Energy Council
WES	Water and Environmental Sanitation
WHO	World Health Organization
WMO	World Meteorological Organization
WSP	World Solar Programme
WUP	Water Utility Partnership

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CHAPTER 1

INFRASTRUCTURE OVERVIEW

1. INTRODUCTION

Poverty is the most fundamental reality in Africa, and its alleviation, if not eradication, is Africa's largest, most urgent challenge. NEPAD is a pledge by African leaders, based on a common vision and a firm and shared conviction, that they have a pressing duty, *inter alia*, to eradicate poverty. This is especially important in the light of recent findings (see Box 1.1[1]) that, while other regions in the world are making steady progress with respect to poverty reduction targets, Africa is slipping further and further behind. Thus, NEPAD's creation has come at a critical juncture in Africa's development; never has it been more important to get to grips with the intractable problems that underlie Africa's malaise.

Box 1.1: Number of people living on less than $1 a day (millions)

Despite progress, millions remain in extreme poverty

	1990	**1999**	**2015**
East Asia and the Pacific	452	260	59
(excluding China)	92	46	6
Europe and Central Asia	7	17	4
Latin America and the Caribbean	74	77	60
Middle East and North Africa	6	7	6
South Asia	495	490	279
Sub-Sahara Africa	242	300	345
TOTAL	1,276	1,151	753
(excluding China)	916	936	700

Infrastructure services are important aspects in addressing NEPAD's poverty reduction goals for Africa.

Underlying one of NEPAD's primary poverty reduction objectives, to reduce Africa's economic marginalisation, is the maxim that there can be no development without trade and there can be no trade without infrastructure. Infrastructure is defined in this context as transport, energy, water and information and communications technology (ICT). The primary activity space of NEPAD is the region. Through the principle of subsidiarity, infrastructure activities within the national economic space remain the purview of the Governments concerned; NEPAD's primary role is to promote, to facilitate and to monitor the development of regional infrastructure activities. A secondary role for NEPAD is to help to put in place the structures, institutional capacity and financing that will be necessary to meet Africa's Millennium Goals and to promote the harmonisation of policies and regulation, even though these activities will, in fact, be undertaken at the national level.

Why is Regional Infrastructure Important?

While the role of infrastructure within a country is well recognised, what is less well understood is the role of regional infrastructure. The concept of regional infrastructure is important because African economies are typically too small to generate the economies of scale that can be found in larger markets. Thus, transaction costs are high and competitiveness is low. The potential for reducing transaction costs and increasing competitiveness through the sharing of the production, management and operations of infrastructure facilities and through hubs, development corridors or poles is immense.

Opportunities for shared facilities are obvious in the cases of trade in electricity and gas. They also exist in the areas of

[1] World Bank

water resource management, railways, telecommunications and even universities and training centres. In the road, rail and port sub-sectors, opportunities are more likely to exist in the undertaking of development corridors associated with road projects. In the port and air transport sectors, they are likely to arise through the development of port and airline hubs in critical locations to serve not only a single country, but also its hinterland.

Economies of scale can result from both the physical provision of infrastructure and the associated operations and services. It is estimated that pooling electricity generation facilities in Southern Africa could generate savings for Southern Africa of US$80 million per annum in operating costs and US$700 million in expansion costs over the next 20 years. Creating air transport hubs could eliminate the need for costly airport construction--Abidjan Airport development cost US$32 million--to those hubs that would carry large volumes of international and regional traffic. Creating multi-country telecommunications markets would encourage the private sector to invest in the latest technology to replace current out-dated systems.

At the operating level, additional savings could be achieved. Rail systems that require a change of locomotive and crew at each border crossing create higher than necessary operating costs and prices for customers and they also create delays, increasing time to market and reducing competitiveness. Having to deal with multiple, different national systems with respect to customs, transit documents, insurance documents, etc., imposes a substantial burden on producers and manufacturers, especially when they create opportunities for rent-seeking behaviour.

Similar examples can be produced for virtually every factor of production and virtually every service associated with the export/import business. It is no wonder that Africa's international competitiveness remains compromised and its penetration of global markets remains feeble. Yet they are all areas in which a regional approach can be expected to provide economies of scale and to reduce both the costs of factors of production and transaction costs. In addition, infrastructure activities create an excellent opportunity to pursue NEPAD's governance and peer review agendas at a sectoral level. This is the thrust of the NEPAD Short-term Action Programme for Infrastructure.

2. THE APPROACH

The approach adopted by NEPAD is two-pronged: a short-term action programme has been developed based on a survey of the infrastructure projects under preparation by countries and by regional institutions. This project selection process have been guided by the following criteria: projects that are at an advance stage of preparation and that can be fast-tracked; projects that support both a regional approach to infrastructure provision and regional integration; projects that have stalled for political reasons and where

Box 2.1: NEPAD – Short Term Action Plan Selection Criteria of Projects

Projects that are at an advance stage of preparation and that can be fast-tracked

Projects that support both a regional approach to infrastructure provision and regional integration

Projects that have stalled for political reasons and where NEPAD's intervention could be expected to make a difference

Initiatives that offer solutions to regional policy, regulatory or institutional blockages to regional infrastructure activities

Projects that respond to the involvement of the private sector in infrastructure provision

NEPAD's intervention could be expected to make a difference; initiatives that offer solutions to regional policy, regulatory or

institutional blockages to regional infrastructure activities; and projects that respond to another NEPAD objective, that of involving the private sector in infrastructure provision. The Short-term Action Programme will be linked to and complemented by a Medium- and Long-term Action Programme that will take up projects and initiatives that require more time for preparation and development.

Due to the nature of the Short-term Action Programme, it contains relatively few items that can be expected to showcase NEPAD in action. Needless to say, it does not contain all the projects proposed by the RECs, nor does it set out to achieve balance between regions in Africa. **It is to be interpreted rather as the first stage in a rolling action plan that will be updated periodically as and when better information becomes available.** The Medium- and Long-term Action Programme will be much more comprehensive.

3. THE PROGRAMME

For each of the infrastructure sub-sectors—water, energy, transport and ICT (Information and Communications Technology), the Short-term Action Programme contains a brief statement of each sub-sectoral vision, the problems facing the sub-sector and the NEPAD response.

This brief overview is complemented by brief descriptions of specific physical infrastructure projects, studies and policy, regulatory or institutional initiatives that will be promoted and facilitated by NEPAD both in terms of helping to remove obstacles at the highest political level and of assisting with raising the necessary funding.[2]

[2] Funding decisions on individual projects or initiatives would, of course be subject to the decision-making processes of the funding agencies

4. CAPACITY BUILDING

Many of the sub-sectoral initiatives described below refer to or include activities related to capacity building. It is however, appropriate to make two general comments regarding capacity building at a broader level.

First, the activities included in the Short-term Action Programme in Infrastructure provide a unique opportunity to create a body of knowledge regarding what works and what does not, to create pilot and demonstration activities and create a bank of knowledge that will be invaluable in helping others to avoid having to reinvent the wheel. Experience with the implementation of the Yamoussoukro Decision on the liberalisation of air transport could be instructive for the creation and operation of the Africa Energy Charter; the Maputo Development Corridor experience could be useful in the creation of development corridors in Eastern and West Africa. This will only happen, however, if NEPAD resolutely promotes a culture of sharing knowledge and learning from others in national, regional and continental entities.

Second, experience with regional training centres has been mixed. It would be useful for NEPAD to sponsor an inventory of the capacities and performance of these training centres, including a diagnosis of their means and capacity to meet their mandates, the extent to which they are valued by their potential clients, and the extent that they are genuinely empowered by those who gave them their mandates. The results would form the basis for a programme of strengthening and/or rationalisation of the institutions to enable them to play a fuller role in the development of the continent.

It might also be appropriate to undertake a similar exercise with the RECs to ensure that they have the capacity to undertake

the enhanced roles that they will be called upon to play under NEPAD, that overlapping responsibilities are eliminated and that they learn from each other to their mutual benefit. It is in Africa's interest that the RECs are strong; it is in NEPAD's interest to help them become so.

5. GOVERNANCE AND PEER REVIEW

Since many regional infrastructure initiatives and projects are blocked by a failure at the national level to carry through on commitments made at the regional level, it has been deemed appropriate to take a leaf from the NEPAD governance and peer review initiative and to create a mechanism for assessing on an annual basis the status of infrastructure development in each country. Following the example of the African Economic Outlook produced by the OECD and the African Development Bank, NEPAD would sponsor a companion volume—the African infrastructure Outlook--that would set out for each country the rate of progress achieved in key infrastructure areas, such as basic services to the poor, facilities for industry and trade, privatisation, cost recovery, sectoral financial governance by governments and parastatals. In addition to the establishment of a sector peer review system, the publication of independently produced data will allow partners from the public and private sectors to assess progress and will provide them with a more substantive basis for investment decisions.

6. PREPARATION OF THE MEDIUM – LONG TERM ACTION PLAN

The preparation of the short-term action plan has shown the need for a programmatic framework for setting objectives against benchmarks and defining strategies and rolling programs. Many of the interventions retained under the short-term action plan are in fact elements of broader programs and comprise a combination of policy measures and institutional reform, investment and capacity building. The preparation has also showed the potential value of exchanges between the RECs to foster the dissemination of good practices and innovations. The Medium-Long Term Action Plan would complement and supplement efforts undertaken within the Short-Term Action Plan.

The goal of the Medium-Long Term Action Plan is to ensure the steady and sustained development of infrastructure on the continent. It would deal with three inter-related areas of: (i) policies, regulation and institutional structures; (ii) investment requirements and financing; and, (iii) institutional capacity utilization and development as well as knowledge sharing and networking.

CHAPTER 2

ENERGY

1. INTRODUCTION

Energy services are a crucial input to providing adequate food, shelter, clothing, water, sanitation, medical care, schooling, and access to information - important aspects in addressing poverty reduction in the continent. Increased access to energy services will not, in itself, result in economic or social development, but lack of adequate energy inputs can be a severe constraint to development. The energy sector has a key role in bridging the infrastructural gap in Africa.

African leaders have now realized that a 'Business as Usual' approach of implementing projects and programs has not advanced the economic development of Africa, and have formulated the NEPAD initiative to promote, amongst other things, the development of the African energy infrastructure through a new form of partnership. NEPAD initiatives will foster policy and institutional reforms needed to improve efficiency and create the environment that would enable the financing of the sector through internal cash generation and the private sector.

As shown in Chapter 1, the economies of individual African countries are typically too small to generate the economies of scale that can be found in integrated markets. Hence, energy infrastructure development that is limited to meeting country level demands only is associated with high transaction costs and low competitiveness. Furthermore, as also shown and demonstrated earlier, in Africa, the potential for reducing transaction costs and increasing competitiveness through the sharing of the production, management and operations of energy infrastructure facilities is immense.

The objective of this report is to propose projects, studies/initiatives for NEPAD's Short-term Action Plan. The proposed projects were identified through consultation with regional and sub-regional organizations. The projects were then prioritised on the basis of agreed selection criteria. Detailed Project Assessment Reports (PARs) and Terms of Reference (TORs) for Studies were prepared for the prioritised projects, studies and initiatives recommended for NEPAD's Short-term Action Program.

The challenge for NEPAD's African Energy Infrastructure Initiative is to develop fully the energy resources of the continent in order to deliver affordable energy to the various economic and social sectors. This will enhance economic development and improve the standard of living of the continent's population. The objective of the proposed Energy Infrastructure Projects is, therefore, to exploit the continent's rich energy resources, through regional cooperation, and to contribute towards poverty reduction and economic development in the continent in line with the overarching objectives of NEPAD.

2. BACKGROUND

2.1 Sustainable Energy

Sustainable energy can be defined as energy produced and used in ways that support human development over the long term, in all its social, economic, and environmental dimensions[3]. **Guaranteeing a sustainable supply of affordable**

[3] **UNDP/UNDESA/WEC: World Energy Assessment: Energy and the Challenge of Sustainability**, United Nations Development Program/ United Nations Department of Economic and Social Affairs/World Energy Council, New York, September 2000

energy is one of the best ways to address poverty, inequality, and environmental degradation everywhere on the planet[4]. In relation to sustainable energy, the United Nations Commission on Sustainable Development at its Ninth Session in April 2001 deliberated on energy and transport for sustainable development. Key issues that required particular attention were identified, together with appropriate strategies and options to correct the situation .

Energy is central to achieving the goals of sustainable development, and reducing poverty is a requirement of sustainable development. Presently, access to modern energy in Africa is limited, and the current energy supply system is not sufficiently reliable or affordable to support widespread economic growth. The productivity of one third of the world's people, many of whom are in Africa, is compromised by lack of access to commercial energy and perhaps another third suffer economic hardship and insecurity due to unreliable energy supplies. NEPAD's energy infrastructure initiative will play a key role in increasingly connecting the African urban and rural poor to reliable, commercial sources of energy and contribute towards poverty reduction.

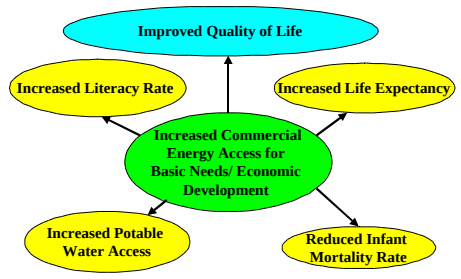
2.2 Energy and Quality of Life

The energy dimension of poverty is the absence of adequate, affordable, reliable, quality, safe, and environmentally sound energy services to support economic growth and human development. NEPAD will play a significant part in furthering regional cooperation and integration, which will minimise the cost of supply arising from the economies of scale of large regional supply systems, whilst enhancing reliability of supply and reducing adverse environmental impacts.

Energy use is closely linked to a range of social issues, including poverty reduction, population growth, urbanization, and opportunities for women. Energy is needed to meet basic human needs (food consumption, clean water supply, shelter, health, education, employment etc) and economic growth. Generally, the quality of life improves with commercial energy use, which is associated with increased economic activities and industrial development. An increase in availability and use of electricity is generally associated with an improved quality of life.

On the other hand, lack of electricity usually means inadequate illumination, and few labour saving appliances, as well as limited telecommunications and possibilities for commercial enterprise. The energy consumption patterns of poor people - especially their reliance on traditional fuels in rural areas - tend to keep them impoverished. Fig 2.1 shows some of the linkages between increased energy access for basic needs and quality of life.

Fig 2.1. Linkages between Access to Commercial Energy and Quality of Life



[4] **Doucet G: Making Energy Affordable by Making its Production Sustainable**, Global Energy Business, McGraw-Hill, New York, March/April 2001

3. AFRICAN ENERGY SECTOR CHALLENGES AND OPTIONS

The development of energy in the continent still lags behind population growth and socio-economic needs that are being experienced by nearly all African countries. In Africa, per capita commercial energy use has barely increased since 1970 and remains at less than 10 percent of per capita use in North America. In essence this means that most Africans have no access to commercial energy[3]. Africa with 13% of the world's population, consumes only 3% of the world's commercial energy although its share of the world's energy production is 7%. Thus Africa's per capita energy consumption is very low by world standards, and much of the commercial energy it produces is consumed elsewhere.

A driving force must be to make African energy industry more competitive. As Africa is in competition with other continents regarding potential investors, there is a need for African countries to pool their resources and enhance regional cooperation and integration on the continent in order to improve international competitiveness by making energy services available at competitive costs in line with NEPAD's objectives. Putting in place the necessary legal, institutional and regulatory frameworks will constitute an important first step as part of the process.

Fig 2.2 shows the important challenges involved in the provision of sustainable energy to contribute towards poverty reduction, which NEPAD intends to address in its Short-term Action Program.

Fig 2.3 shows areas of cooperation in sustainable energy development, which will contribute towards economic growth and poverty reduction. Through regional cooperation, the projects will assist in developing the continent's rich energy resources.

Fig 2.2. Important Challenges in Addressing Poverty via Sustainable Energy

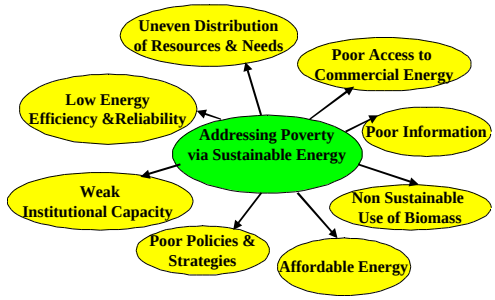
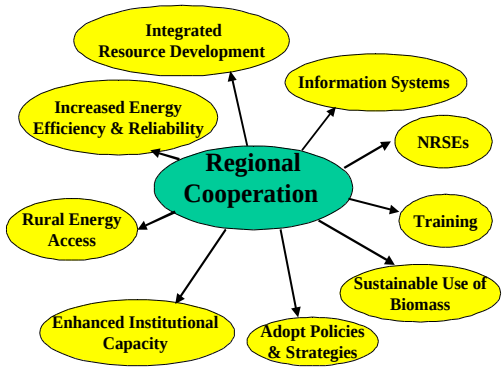


Fig 2.3. Options in Addressing Sustainable Energy Development via Regional Co-operation



3.1 Uneven Energy Resources Distribution and Needs

Africa has an abundance of commercial energy resources (e.g. coal, gas, oil, new and renewable, and nuclear), but they are not uniformly distributed with regard to form, locality and needs. North and West Africa have the bulk of the oil and gas reserves, whereas Southern Africa holds most of the coal deposits. Vast hydroelectric potential is located mainly in Central Africa, and forms part of Africa's extensive renewable sources of energy. However, most of the energy resources are in those areas far from present demand centres, often in countries with poor economic conditions and with inadequate infrastructures. It is thus not energy

resources that are lacking in Africa, but rather the technical and financial capacity to harness and optimally exploit them, and the political will to implement the numerous interconnections needed for their utilisation as part of an integrated development strategy to match supply with demand[5]. However, policy and institutional reforms at the country level must be put in place.

Africa is a net exporter of energy, mainly of oil, but also of natural gas and coal. Africa's oil exports come mainly from a few countries (Algeria, Angola, Cameroon, Congo, Egypt, Gabon, Libya, Nigeria, and more recently, Equatorial Guinea and Sudan). Natural gas exports come overwhelmingly from Algeria, and coal exports almost exclusively from South Africa. Dependency on oil as a commercial fuel represents at times nearly half of the energy bill of non-oil producing countries. Intra-African trade in oil and gas is limited, and would be enhanced by regional cooperation.

Gas flaring causes global, regional and local environmental problems and constitutes the waste of a valuable and non-renewable resource. This takes place for lack of local markets and vision to link into international markets, as well as lack of infrastructure. Flared gas is a relatively cheap natural resource that could be tapped to reduce the cost of electricity, increasing Africa's competitiveness and supporting economic opportunities for Africa. Such energy could otherwise have been used. The gas flared in Nigeria alone could fuel total annual electricity production for Sub-Saharan Africa. 89% of worldwide gas flaring is in developing countries; of which 25% is flared in Sub-Saharan Africa; and 75% of that in Nigeria. Six countries account for Sub-Saharan Africa flaring/venting of gas, namely, Nigeria, Angola, Gabon, Equatorial Guinea, Congo and Cameroon[6].

Reducing gas flaring in Africa requires the political will for countries - in Africa and globally - to come together to solve the problem and encourage the development of regional markets to justify the large up-front investments. Sector reforms are needed to create incentives to capture the economic value of natural gas. Linking the reduction in gas flaring with international climate change treaties would facilitate funding by building on the global dimension of the problem.

A similar point can be made with respect to Africa's huge and largely untapped hydro potential. Spilling water from dams for lack of adequate demand and not harnessing hydro resources may be likened to gas flaring on the basis that it constitutes a waste of low-cost and abundant energy resource. In each case, Africa should embark on a program to exploit both hydro and flared gas, as well as other resources, for multi-purpose uses including power generation.

3.2 Energy Efficiency and Reliability of Energy Supply

In past decades, African energy intensity, which is a measure of commercial energy consumption per dollar of GDP, has increased whilst during the same period there has been a decline in the world average energy intensity. Energy supply and end-use efficiencies in the continent are still only two-thirds to one half of what would be considered best practice in the developed world. Thus an important objective of regional integration efforts should be to improve the inefficient

[5] **ADB : Energy Situation of Africa. Synthesis Report,** African Energy Program, Abidjan, 1995

[6] **World Bank : Gas Flaring in Africa. Challenges and Opportunities,** NEPAD Work in Progress Review Workshop, Benoni, January 2002

utilization of the continent's energy resources.

The direction of energy systems and energy policies must be shifted towards greater emphasis on end-use efficiency, renewable energies and low-emission technologies. Cooperation activities need to be formalized with developed countries and international institutions regarding energy efficiency to assist African countries to develop capabilities and expertise to implement sustained least cost energy development. There is great potential in African countries for promoting energy efficiency activities as a way of increasing the competitiveness of their economies, fostering technology progress, and protecting the environment[7].

Much plant in Africa is being under-utilised, and low levels of plant availability are being recorded. It is necessary to improve reliability and lower the cost of energy supply to productive activities in Africa thus making them more competitive, in order to attain the economic growth as required in the objectives of NEPAD. There is therefore a need to ensure the optimum utilisation of plant assets, in particular before any additional plant is purchased.

The ability to identify a wide range of "best practice" options aimed at performance improvement is important. In the past it may have been adequate to simply identify the "best" technical option, but in today's market-based business environment, the most cost-effective option is the overriding factor for competitiveness in business. Using every available channel to identify viable options is necessary to determine best use of an organisation's limited resources. Much could be learned from experiences of others, and lessons learned by top utilities/organisations in Africa and the developed world would be disseminated as part of NEPAD's Initiative. Benchmarking performance against peers in the international scene is an important part of the performance improvement measures.

3.3 Sustainable Biomass Use

Some 2 billion people, or one-third of the world's population, many of whom are in Africa, have no access to modern energy and rely heavily on traditional energy sources. Africa's biomass energy consumption is estimated to be the same as that of China and India whilst their population is three times that of Africa. Biomass accounts for about two-thirds of the energy consumption of 32 Sub-Saharan African countries.

Dependence on traditional fuels will long remain a reality. It is not so much their use that is wrong, but the manner in which they are being managed and used, not always at a sustainable rate. Given the extent of the level of wood-fuel use in Africa, one critical element of a more appropriate energy mix for Africa is more sustainable biomass use[8]. In part this can be achieved by more efficient end use such as improved cooking stoves, using LPG for domestic use etc, but it also calls for more sustainable management of forests and farmland trees. The implementation of improved energy services for sustainable rural development in Africa is an urgent necessity in order to address poverty.

Commercial energy supplies would not only contribute towards the biomass sustainability problem, but also reduce the burden of fuel-wood collection and provide health benefits of reduced indoor air pollution. Strategies are urgently

[7] **Ben Abdallah M: Improving Energy Efficiency in African Countries**, First Pan-African Energy Ministers' Conference, Tunis, Tunisia, May 1995

[8] **Murray J : Appropriate Energy Mix for Africa,** Workshop of the Nigerian Institute of Engineers, Lagos, Nigeria, 22 March 2001

required to improve rural energy planning and implementation. However, energy data required to support these strategies is not freely available. Improving the biomass data collection system and incorporating biomass resources into the national energy balance would enable the management and efficient utilization of biomass resources.

Energy could be made a vital entry point or "lever" for improving the position of women in the household and society. Strategies are required to improve the rural situation by building on the existing knowledge and expertise of women and by improving upon traditional, well-tested methods and practices. Rural energy consumption and production revolve around the household as the basic unit of economic activity and the vast majority of household roles, including those relating to energy, fall disproportionately on women.

3.4 Access to Affordable Energy Services

African energy consumption per capita has been consistently lower than the world average. In this regard, one of the important objectives of NEPAD's regional integration effort would be to increase African energy consumption per capita. Africa remains the continent in which the rate of residential connections is the lowest. In 1991, fewer than 22% of African households were connected to networks[9]. This figure presents a generally poor picture, but it conceals wide variations between the sub-regions and between countries within a sub-region.

The pattern in North Africa is very clearly different. For example, in Egypt about 99% of the rural inhabitants enjoy electricity in daily life - this took a long time, substantial amounts of money, and industrious efforts over three decades. In South Africa about 63% of the population had grid supplied electricity by the end of 2000. On the other hand, access to electricity is below 10% in most Sub-Saharan countries, which requires huge investment and a long implementation period to bridge the electrification gap.

It should be noted that regional interconnections will bring optimum solutions for generation and transmission. However, reform of distribution at the country level is critical for spreading the benefits of efficient, low-cost energy to the poor.

It is difficult to reconcile the imperatives of rural electrification with those of maintaining the financial stability of organizations and keeping electricity tariffs at affordable levels. In many countries rural electrification by means of grids and the sole intervention of electricity utilities may not be the best or fastest means of providing a large number of households with electricity. For example, solar electrification of rural households through joint ventures in renewables has been successful. New and renewable sources of energy (NRSE) technologies must play an increasingly important role in fully harnessing Africa's extensive NRSE potential, as the provision of clean, affordable, and reliable energy is a key element of sustainable development.

Diversity of commercial energy supplies and of technologies must be considered and utilised. Balanced energy solutions offer rural communities accelerated access to commercial energy and increased economic opportunity. For example, using the concept of "energisation" relates to matching (energy) supply-side resources with (community) energy demand-side requirements and optimising to form a

[9] **ADB : The Electricity Sub-Sector in Africa,** African Energy Program, Energy Sector Technical Paper No ES1, Abidjan, Côte d'Ivoire, 1996

combined least-cost energy solution[10]. The "energisation" concept provides essential electricity by a range of methods (e.g. PV) together with other alternative energy forms (e.g. LPG, biomass). Facilitating cooperation in rural energy in Africa as part of the Facilitation Project would form part of NEPAD's role.

The philosophy of providing energy services using a least-cost approach is fundamental. The approach should be one of moving towards basing energy pricing on the principle of full-cost recovery that includes environmental and other externalities. Such pricing will affect demand in the medium-long term, and will contribute to rational energy use, an increase in economic efficiency, and greater prosperity. Prices should be set at levels that allow energy providers to recover the full cost of delivering the service, including a fair return on investment.

In order to accomplish this, governments, regulators and utilities (whether publicly or privately owned) must implement cost of service determination to calculate the actual cost of delivering energy to each customer category, based on usage patterns, in order to quantify tariffs for each category. Lack of costing transparency and an inadequate costing structure are major hindrances to achieving a sustainable energy system. It is essential to develop effective ways and means of ensuring that payments for energy services are timely and that the culture of non-payment for energy services rendered, which exists in varying degrees in many countries, is changed. Consideration of this aspect would form part of a program to address not only technical but also non-technical losses as part of NEPADs' initiatives in energy efficiency.

However, it will be necessary to bridge the gap between the cost of providing energy and making energy affordable for the poor. Although poor nations cannot afford to subsidize the poor entirely, they must be committed enough to participate in the effort, if that effort is to be successful. As poor nations cannot do this alone, partnerships between nations will be required. Energy subsidies must benefit those who really need them and enhance the accessibility, availability and acceptability of energy services. Such subsidies should be visible in terms of their size, transparent in terms of their sources and beneficiaries, and subject to review within a prescribed time period. Subsidies should be reserved for situations in which new strategies alone cannot make modern energy widely available[3], and should be time bound.

3.5 Reducing Risk

Political Risk

There is a need in Africa to reduce the political risk of energy sector investments. This requires good governance, including fighting corruption by making ethics a strong component of energy. It also requires using a holistic approach to a high standard of ethics in the energy industry encompassing personal standards and behaviour, corporate governance, gender equality, fair competition practices and, more generally, respect of the law.

In order to attract more and less costly private investment, NEPAD would take the lead with initiatives designed to reduce the risks and enhance the perceptions of investors with respect to private sector investments in the continent. Supporting the preparation of an Energy Protocol for the African continent is one such initiative.

[10] **Laing CA; Rosselli G: Energisation: A Collaborative Application of Conventional Energy Resources for Energy Upliftment in Rural Communities**, 17th WEC Congress, Houston, Texas, September 1998

Technical Risk

To reduce technical risk and in order to promote energy for sustainable development, there is a need for access to, and transfer of, environmentally sound technologies to Africa under favourable conditions. This could be done through supportive measures that promote technology cooperation and that enable transfer of necessary technological know-how as well as building up of economic, technical and managerial capabilities for the efficient use and further development of transferred technologies. Cooperation in technology involves joint efforts by the enterprises and governments, suppliers and recipients of technology. Successful long-term partnerships in technology cooperation require continuous and systematic training and capacity building at all levels over an extended period of time.

Financial Risk

Financial resources and mechanisms play a key role in the implementation of energy programs and projects in Africa. In some countries, political risks, absence of the necessary institutional frameworks and effective legal remedies, and prevalence of arbitrary interventions pose powerful barriers to investment and successful project completion. Financing remains a daunting challenge for many of the countries that need sustainable energy systems the most. Market reforms and the creation of functioning legal frameworks are moving too slowly in many countries. Renewed efforts are essential to ensure that access is opened to all sources of funding for energy programs in the continent. This would in turn contribute to Africa's economic and social development and environmental protection in the context of sustainable development. African governments should initiate or further implement reforms to improve regulatory frameworks and institutional set-ups in order to create a more conducive environment for attracting private sector investment.

3.6 Capacity Building

It is necessary to build the requisite human and institutional capacities in the energy sector in the regional and sub-regional organizations in Africa. Building capacity in Africa will do more for its investment attractiveness than any political risk insurance scheme[8].

For many years, donors have supported capacity building in public utilities with, in many cases, very limited results in terms of services to customers, financial sustainability and operational efficiency. Incentives and the institutional culture must be conducive to the optimal use of human capacity.

The private sector has the capital and the potential to raise additional capital easily for investment. Furthermore, as the private sector has skills and technology and its operation is profit-oriented, the participation of the private sector would lead to efficiencies in the allocation of business resources. The participation of the private sector would also assist in the transfer of technology and build local capacity to improve the performance of the public sector and augment the participation of local private sectors in the development of the energy sector. The participation of the local private sector would contribute to the socio-economic development of countries through employment generation and income generation.

AFREC

The adoption of the Convention of the African Energy Commission (AFREC) by the Organization of African Unity (OAU) Assembly of Heads of State and Government in July 2001 in Lusaka was a

big step forward in Africa's energy development. AFREC is a key component of the institutional framework created by African leaders to promote cooperation and regional integration in the African energy sector.

Under the Capacity Building Project and through the assistance of NEPAD, AFREC will be operationalised through ratification of the Convention, appointment of the Board and Technical Advisory Body and staff of the Secretariat. The Capacity Building Project will develop the necessary human and institutional capacity in AFREC to enable the Commission to discharge its mandate.

RECS

There is a need to build institutional and managerial capacity in the energy sector in the Regional Economic Communities (RECs) in order to enable them discharge their mandates. The Capacity Building Project will provide technical support to develop human and institutional capacities in the RECs to assist them to promote regional integration in the energy sector through the formulation of appropriate policies and strategies and in the implementation of regional programs.

African Energy Information System and Planning Tools

The Capacity Building Project will establish an African Energy Database Centre, and operationalise and disseminate the Integrated Planning Tools (Information System, Accounting Model and Forecasting Model) developed by the African Energy Program (AEP) of the African Development Bank (AfDB). The Planning Tools and the Energy Database Centre will equip AFREC and the RECs with the necessary tools and energy database to plan and implement projects effectively at country, sub-regional and regional levels.

Using energy databases is necessary for informed planning and decision making to optimise the energy mix and cross-border integration of energy supplies. The development of a broad based "e-society" should take place to spread the available information on new energy technologies, including distribution, generation, new renewables and applicable cleaner fossil fuel technologies. Promotion of the sharing of best practices should take place. For example, lessons learned in the establishment of the Southern African Power Pool (SAPP) should be transferred to the West Africa Power Pool (WAPP), currently being established, in particular regarding SAPP's Short-Term Energy Market (STEM). In addition, networking should be encouraged to ensure the sharing of extensive knowledge, information, expertise and experience available in the international energy scene.

Training

As part of the Capacity Building Project, a training assessment will generate proposals for training African energy experts using existing sub-regional Energy Training Institutions or other centres of excellence. The assessment will identify the sub-regional training institutions or other centres of excellence by discipline and make proposals on how the centres would be strengthened and used for continent-wide training, inter alia, in the areas of strategic planning, project management and operation.

3.7 Energy Policy and Planning

It is clear that Africa needs to review its energy policy/strategy with a view to enhancing the development of the continent's energy resources and advance socio-economic development. Given the imbalance between potential and demand, players in Africa's energy sector must work towards its integrated development.

At regional level, there is a need for integrated (least-cost) energy planning, which considers both energy supply-side and energy demand-side management options in order to meet the continent's energy needs. The African energy sector faces financial constraints and environmental and institutional impediments, which it must address to meet the growing energy services needed for its population. Wrong decisions made on either the formulation of energy policy decisions or investments affect the energy supply/demand situation at a later time, which results in either energy supply deficit or over investment.

It is, therefore, necessary to develop policies and planning capacity at all levels (countries and RECs) for drawing up realistic energy sector investment plans so that demand always matches supply in providing energy services. Providing Integrated Energy Planning Tools that can be used at regional and sub-regional levels will be particularly important to assist in integrated energy planning.

The progress in energy sector liberalization, privatisation, customer choice and regional trading, areas where many African countries have already taken important steps, must be further encouraged. There is a need to "level the playing fields", as "uneven playing fields" are one of the biggest barriers to the widespread implementation of sustainable energy strategies[3]. Where some competitors enjoy an unfair advantage, true competition is not occurring, new entry is inhibited, and market forces cannot operate effectively.

In many African countries, energy utilities and energy regulation are being re-organised in order to make markets more competitive. In Côte d'Ivoire, for example, the reformed state utility nearly doubled the number of its customers in the ten years following its management by the private sector.

As part of the Facilitation Project, continent-wide energy policy and strategy frameworks will be formulated and adopted in order to further regional cooperation for effective development of Africa's energy resources and promote public-private partnerships.

4. VISION FOR REGIONAL INTEGRATION IN AFRICA'S ENERGY SECTOR

4.1 Regional Cooperation

Cooperation in energy development in Africa is essential in order to integrate long-term energy policy options with overall economic and other policy considerations. The precondition for any meaningful regional cooperation is political stability coupled with a collective political will. Enhancing energy interdependence in Africa will enable more efficient utilization of its vast energy resources in line with least-cost investment strategies. Regional cooperation should therefore be made an integral part of national policy making and planning processes, and countries should seek the opportunities offered by regional cooperation to enhance national economic management and performance.

4.2 Role of AFREC and RECs

As outlined in its Convention, AFREC's principal functions include: establishing energy development policies, strategies and plans; developing a continental energy database; developing of human resources; and developing intra-African energy trade and transit. Operationalisation of AFREC will enable it to implement the Capacity Building and Facilitation Projects identified for NEPAD's Short-term Action Program.

The RECs function as important building blocks to achieve the overarching infrastructural goals at continental level as part of the new African Union (AU), whilst forming frameworks for cooperative approaches for the growth of infrastructure and the creation of larger energy markets. In the Short-term Action Program, the institutional capacity in key RECs will be strengthened.

It is, however, worth noting that the **proliferation of RECs has created problems**, including, inter alia, those associated with overlapping membership of multiple RECs[11]. There is thus a requirement to align these RECs so that they complement the AU, and mechanisms are needed to ensure coherence, reduce duplication of efforts, rationalise structures, and harmonise energy policies and programs.

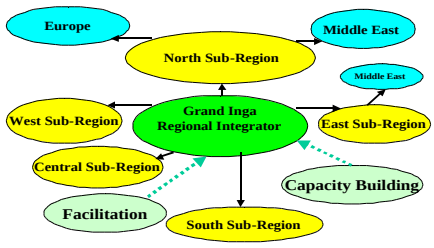
4.3 Philosophy, Strategy and Approach for Identification of Short-term Action Projects

Projects and programs were identified in consultation with regional and sub-regional organizations as well as countries, selected on the basis of their relevance to the identified projects, with close collaboration of the World Bank, the EU and UNECA. The consultations, which included field missions, enabled the integration of local inputs in the prioritisation of the projects, studies and initiatives. PARs for projects and TORs for the studies and initiatives were then prepared as proposed in NEPAD's Short-term Action Plan.

The regional energy projects, studies and initiatives identified for the short-term action program are intended to serve as building blocks for the realization of medium- to long-term goals. The focus will be on sector development and power systems integration targeted for completion initially at the sub-regional level in the medium-term, and intra-regional interconnection completion in the long-term with the development of Grand Inga in the Democratic Republic of Congo (DRC) serving as the integrator of the sub-regions (see Fig. 2.4). Where appropriate, gas and electricity export projects have been included to increase export earnings and to serve as a practical basis for North-South technical and financial partnerships. In parallel, appropriate policies/strategies will be developed and adopted under the Facilitation Project, and human and institutional capacities will be built as part of the Capacity Building Project to assist in the development and operation of the programs.

The short-term projects identified can be

Fig 2. 4. Strategy and Approach for Integrated Energy Project Development



classified by discipline as,

1) Physical Projects - power system interconnections, gas/oil interconnections and hydropower generation;
2) Studies for Physical Projects;
3) Capacity Building Project; and
4) Facilitation Project.

Whilst a large number of physical projects were identified during the field missions, a prioritised list was formulated in accordance with criteria proposed in the NEPAD Report on Infrastructure

[11] **UNECA: Consensus Statement on the Way Ahead**, African Development Forum III, Addis Ababa, March 2002

Development as presented to the Extended NEPAD Steering Committee Meeting in March 2002 in Abuja, Nigeria. The criteria used in the selection of the projects, studies and initiatives are summarised in Box 2.1.

The Short-term Action Program will be linked to and complemented by a Medium- and Long-term Action Program that will take up projects and initiatives that require more time for preparation and development. The Short-term Action Program does not contain all the projects proposed by the RECs, nor does it set out to achieve balance between sub-regions.

It is to be interpreted rather as the first stage in a rolling action plan that will be updated periodically as and when better information becomes available. Under the Short-term Action Program, an enabling environment will be created for the Medium- and Long-term Action Program.

The philosophy of the approach for the capacity and facilitation projects in particular was to review and develop what was already there using existing structures where available, addressing the deficiencies and requesting the assistance of partners in the developed/developing world as appropriate.

After position papers have been prepared**,** workshops will be organized to deliberate on the issues and ensure a participatory approach in the development of Africa's energy sector. Input will be sought not only from players in the African energy scene, but also from the developing and developed world, as well as energy experts in the international energy scene.

5. SHORT-TERM ACTION PROGRAM FOR NEPAD PROJECTS

The Short-term Action Program in energy includes one hydropower project, eight power system interconnection projects, three gas/oil interconnection projects, six studies for physical projects, a capacity building project, and a facilitation project selected in terms of the criteria indicated in Box 2.1. The projects would be implemented under the umbrella of NEPAD's Short-term Action Program, which would contribute to the realization of the objectives and goals as outlined in Section 1. Brief descriptions of the projects are given below, and further details are available in the PARs and TORs in Appendix 2.

Box 2.1 Criteria for Selection of Short-Term Energy Projects

- Projects of a regional nature - projects involving a number of countries, sub-regional and regional organizations;
- Projects whose studies are completed and/or their development initiated;
- Non-complex projects - projects which do not entail changes in national development plans, and can easily attract support;
- Projects that generate quick returns - to build confidence among countries, partners and NEPAD;
- Projects that provide a high probability of success, including low political risk;
- Stalled projects which require direct political intervention to comfort investors;
- Studies for physical projects, which would be implemented for the realization of medium - to long - term objectives;
- Initiatives which offer solutions to pending policy, regulatory or institutional constraints;
- For the Capacity Building Project, able to operationalise AFREC and build human and institutional capacity in RECs to promote regional cooperation; and
- For the Facilitation Project, able to support the preparation and adoption of policies/strategies and preparation of proposals, which would assist in the advancement of regional cooperation

5.1 Power Systems Projects

South Sub-Region: Mozambique
Mepanda Uncua Hydropower Project

A 1,300 MW hydropower project will be developed north of Maputo, on the Zambezi River downstream of the Cahora Bassa hydropower plant, both for domestic demand and export to SAPP. The project forms part of the recommended actions in the SAPP's Integrated Electricity Plan, and will be developed through public-private partnership involving Mozambique, South Africa and the private sector. The project is scheduled for completion in 2010, and the investment cost is estimated at US$1.6 billion.

East Sub-Region: Ethiopia-Sudan Interconnection

The project will involve the interconnection of the power systems of Ethiopia and the Sudan primarily to replace thermal generation in the latter. Development is intended as a public sector project.

The investment cost of the project is estimated at US$52 million and is earmarked for multilateral/bilateral financing. The project will be completed in 2005.

West Sub-Region: West Africa Power Pool

The program would implement the interconnections of Nigeria - Benin, Ghana - Burkina Faso and Côte d'Ivoire - Mali; and reinforcing the Ghana-Togo-Benin interconnection. The program also includes institutional strengthening of ECOWAS, and will be developed as a public sector program. The project is promoted by the World Bank.

The investment requirement for the program is estimated at US$151 million. The Nigeria – Benin interconnection is earmarked for AfDB and West African Development Bank (BOAD) financing while the financing for the rest of the program will be mobilized through the World Bank. The project will be completed in 2005.

North Sub-Region: Algeria-Morocco-Spain Interconnection (Strengthening)

The project will upgrade the capacity of the existing interconnections among the three countries to enhance the exchange of power. The project will be developed as a public sector program with each country financing the works in its territory. The Moroccan section of the project will cost US$280 million and its financing is earmarked for AfDB and European Investment Bank (EIB). The project will be completed in 2005.

North Sub-Region: Algeria-Spain Interconnection and Algeria Gas-Fired Power Station

The project will develop a gas-fired power station in Algeria and transmit part of the power generated to Europe through Spain by laying a submarine cable. The cost of the project is estimated at US$ 1.5 billion. The project will be developed through private-public partnership, and is targeted for completion in 2004.

South Sub-Region: Mozambique-Malawi Interconnection

The project will transmit the surplus low cost Cahora Bassa hydropower to Malawi, improving system reliability in that country. The project will be developed as a public sector project. The investment in the project is estimated at US$52 million and is being considered for World Bank/AfDB and Bilateral financing. The project is targeted for completion in 2004.

5.2 Gas/Oil Transmission Projects

East Sub-Region: Kenya-Uganda Oil Pipeline

The pipeline will interconnect the existing Mombasa – Eldoret pipeline to Uganda to enable the transport of refined oil from Mombasa to Uganda. The project will be developed as a public-private partnership. The investment cost of the project is estimated at US$90 million, and its completion is targeted for 2004.

West Sub-Region: West African Gas Pipeline

The pipeline will export low-cost Nigerian natural gas to Benin, Togo and Ghana for power generation and direct utilization, creating a sub-regional market for Nigeria's gas. It will also contribute towards solving the gas-flaring problem in Nigeria, as it will utilize gas that would otherwise have been flared. It will be developed under public-private partnership with the involvement of Nigeria, Benin, Togo, Ghana, Chevron and Shell. The investment cost of the project is estimated at US$450 million. The completion of the project is targeted for 2004/5.

North Sub-Region: Libya –Tunisia Gas Pipeline

A gas pipeline will be constructed to transmit Libyan gas to Tunisia. A publicly owned Project Company formed by the national energy utilities of Tunisia and Libya will implement the project. The investment cost of the project is estimated at US$ 274 million, and its completion is targeted for 2007.

5.3 Studies for Physical Projects

Studies will be prepared on:

a) Grand Inga Integrator (the feasibility of developing the hydropower in DRC and transmitting electricity to sub-regions and neighbouring continents);
b) DRCANSA (feasibility of interconnecting DRC, Angola and Namibia; of transmitting hydropower from DRC and Angola via Namibia to South Africa; and utilizing gas in Angola that is currently being flared);
c) Nigeria – Algeria Gas Pipeline (to wheel the Nigerian natural gas through the Algerian gas networks to Europe, and benefit to the countries en route e.g. Niger and Mali); and
d) Sub-regional interconnections (to complete the interconnections in the East, West and Central sub-regions, in the medium-term).

The cost of the studies is estimated at US$22.8 million, which is earmarked for Multilateral and Bilateral financing. The studies will be implemented during the period 2003-2006.

5.4 Capacity Building Projects and Studies (Regional)

Under the Capacity Building Projects/Studies, the following initiatives will be implemented:

AFREC Operationalisation and REC Capacity Building

The objective of the project is to operationalise AFREC and strengthen the capacity of the main RECs through technical assistance. The project would assist AFREC and the RECs to discharge their responsibilities to promote the development of the African energy sector at sub-regional and regional levels respectively.

Africa Energy Information System and Planning Tools

The objective is to formulate and implement proposals to establish and maintain an energy information system

and database at regional and sub-regional levels. These will be, amongst other things, valuable tools for integrated energy planning and decision-making.

As part of this process, the AfDB's AEP Planning Tools would be updated, operationalised, disseminated and used to further develop planning capacity in the continent. At the same time issues pertaining to network building for data collection, training, and system development and support would be addressed.

Knowledge Management concepts would also be considered for incorporation where feasible, in order to make African organisations intelligent-acting, thus enabling best performance and improved positioning relative to competitors.

Proposal for Training of Energy Experts

The institutional reforms needed to develop the energy sector will provide better results only if they are accompanied by support measures where training and information are fundamental. The objective of the study is therefore to generate proposals for training African energy experts using regional and sub-regional energy training institutions, or other centres of excellence.

The cost of the Capacity Building Project is estimated at about US$7 million, which is earmarked for Multilateral/Bilateral financing. The project/study will be implemented during the period 2003-2005.

The project will be implemented by AFREC and sub-regional organizations (ECOWAS/UEMOA, COMESA, SADC, UMA and ECCAS/CEMAC), where the initial strengthening is targeted. Specifically, AFREC will implement the Energy Information System/Planning Tools and Training Assessment sub-projects in line with its mandate.

The Capacity Building Project is seen to be critical, as energy sector reforms are taking place with increased competition and players.

5.5 Facilitation Projects and Studies (Regional)

Under the Facilitation Projects/Studies, the following initiatives will be implemented:

Policies and Strategies

In the project, continent-wide energy policy and strategy frameworks will be formulated and adopted in order to further regional cooperation for effective development of Africa’s energy resources.

Energy Protocol

A Protocol on Energy will facilitate cooperation among RECs in the energy sector and promote NEPAD's initiatives. It will assist Member States to coordinate and harmonize their energy policies and programs. As the Energy Protocol will include establishing legal, regulatory and institutional frameworks, this would assist in providing the necessary enabling environment to attract investors. An Energy Protocol will thus be prepared and adopted to assist in attracting more investments.

NRSEs

A number of sub-regional/regional institutions as well as research organisations at the national level have been established to promote capacity in, and use of, NRSEs in Africa. But such efforts must be intensified alongside creating the right conditions for promoting cooperation and integration throughout the continent, together with working with partners in the developed world - such as

the G8 Renewable Energy Task Force. Utilising NRSEs to their full potential will help to facilitate sustainable development for large numbers of people on the continent, in particular in rural areas.

Activities would be furthered regarding the World Solar Program 1996-2005 (WSP) as approved by the World Solar Commission in June 1997 in line with the importance that should be given to the implementation of the African component (ASP) of the WSP.

The NRSEs initiative would generate proposals for cooperation among RECs, African nations, multilateral and other organisations as well as the private sector to further the development and use of NRSEs in Africa.

Cooperation in Energy Efficiency and Reliability of Energy Supply

Greater energy efficiency and optimum utilisation of plant assets will help to maintain secure energy supplies and bring national economic benefits through energy savings, reduced dependence on imported fuels and increased industrial competitiveness, apart from having significant environmental benefits. Investments would also be able to be deferred through optimal utilization of existing facilities with application of energy efficiency programs using demand side management, improving plant availability/reliability etc. Sharing of lessons learned within Africa and beyond will be valuable in this initiative. A proposal will be developed for a strategy to enhance cooperation in energy efficiency and reliability in the continent.

Cooperation in Oil/Gas Trade

Reducing inefficiencies in petroleum product procurement, refining/processing and distribution will have very significant financial benefits for Africa. A study conducted in 1993 showed that Sub-Saharan African countries can reduce the cost of hydrocarbon import through integrated procurement of petroleum products and reducing inefficiencies in the utilisation of refineries[12]. The study further revealed that through sub-regional cooperation in petroleum product procurement, refining and distribution, annual potential savings estimated at over US$1.4 billion or US$ 51 per ton of oil were possible in Sub-Saharan Africa.

The oil/gas cooperation assessment will review existing intra-African oil/gas trade and the extent of sub-regional cooperation in petroleum product procurement, joint utilisation of refineries, and distribution aspects. These would serve as inputs for a draft position paper to establish modalities for promoting cooperation in this regard.

Cooperation in Rural Energy

The study will generate proposals for cooperation among RECs, between African nations and organisations in the developed and developing worlds regarding furthering rural energy development in Africa. This will make a contribution to the effective implementation of improved energy services for sustainable rural development and lead to significant improvements in the quality of life for Africa's rural population.

The rural energy assessment will review the rural energy programs within African regional and sub-regional energy organisations, within African countries as well as relevant regional and international initiatives, which may support rural energy development in Africa. These would serve

[12] **Mayorga-Alba E: World Bank Activities in the Energy Sector: The Results of the Study on Rationalisation of Downstream Petroleum Operations in Sub-Saharan Africa,** Ad Hoc Meeting of Senior Advisors on Energy Strategy and Policies**,** Addis Ababa, May, 1993

as inputs to formulate a strategy for rural energy provision in Africa.

The Facilitation Project is considered, as in the case of the Capacity Building Project, to be critical as energy sector reforms are taking place with increased competition and players, and the project will assist in equipping the African energy sector to deal with these issues by supporting regional cooperation.

The cost of the project/study is estimated at US$3 million, which is earmarked for Multilateral/Bilateral financing. The project will be implemented during the period 2003- 2005.

The project will be implemented by AFREC with close involvement of the RECs, UNECA, OAU and AfDB. It is imperative to operationalise AFREC in order to implement the project.

5.6 Summary of Outputs of the Proposals

An important aspect of the projects and studies has been to develop further Africa's energy resources potential such as the enormous hydropower potential of Africa (e.g. study of Grand Inga in the DRC, Mepanda Uncua project in Mozambique), as well as to use gas which would otherwise have been flared (e.g. West African Gas Pipeline project), thus utilizing African energy resources optimally. The Nigeria-Algeria gas pipeline has been proposed for export of gas to Europe, thus strengthening the North-South partnership. The project is also expected to benefit the countries along the route (e.g. Mali and Niger).

The sub-regional power interconnection projects will enable the sharing of generation surpluses that become available in the integrated power systems. The Algeria-Spain power interconnection would serve as an alternative corridor to export the continent's resources. The power interconnection studies will generate project proposals for implementation in the medium- to long-term to complete regional integration e.g. Eastern Corridor, for the SAPP to import power from the DRC.

Two gas pipeline projects and an oil pipeline project will be implemented in the short-term. The gas pipelines will supply part of the Nigerian and Libyan gas, which would otherwise have been flared, to West African countries and Tunisia respectively, which are in short supply of energy resources. This will have a positive global environmental impact. The Kenya-Uganda oil pipeline will replace land transport of oil from Eldoret in Kenya to Kampala in Uganda, which is relatively expensive, thus reducing the cost of oil products in Uganda and neighbouring countries.

The Capacity Building Project is intended to operationalise and strengthen AFREC and build capacity in the RECs. As regards AFREC, it is intended to transform the institution into a legal entity through the ratification of the Convention and operationalise it through the appointment of the Board and the Technical Advisory Body by providing the appropriate technical support to discharge its responsibilities. The project would also provide technical support to the RECs to strengthen their capacity in the formulation and implementation of regional policy, as well as strategy formulation, and preparation and implementation of regional programs.

The development of human capacity at all levels is key for the development of the sector. It would therefore be necessary to undertake a review of the specialized African Training Institutions and develop them to become regional centres of excellence for training the continent's strategic energy experts. In parallel, the existing capacities of the establishments

could be utilized to train strategic energy expertise for planning, design and operation of the energy systems.

The furthering of an energy information system and immediate operationalisation, dissemination and use of the Planning Tools developed by the AfDB would contribute towards building energy planning capacity on the continent.

The Facilitation Project will promote cooperation among African countries, donors and the private sector for energy infrastructure development.

The preparation and adoption of an Energy Protocol will facilitate the attraction of more investments, as it will include establishing legal, regulatory and institutional frameworks, assisting in providing the necessary enabling environment to attract investors. This will help to reduce the risks and enhance the perceptions of investors with respect to private sector investments.

6. NEPAD INVOLVEMENT IN IMPLEMENTATION OF THE PROJECTS

The role of NEPAD in the implementation of the recommended projects and initiatives is discussed below:

6.1 Power Systems Projects

Regarding Mepanda Uncua (MU), NEPAD's assistance will be required in promoting the project, and facilitating the liberalization of the energy market in the sub-region in general and South Africa in particular for the export of power from MU. Furthermore, NEPAD would promote the project to potential investors and facilitate the mobilisation of financial resources for the project.

NEPAD would facilitate the mobilisation of financing for the projects, the conclusion of agreements (Power Purchase Agreements, Construction and Operation Agreements), and monitor the overall implementation of the projects. Regarding the Ethiopia-Sudan project, NEPAD would, in addition, facilitate the resolution of internal conflicts and the payment of arrears on loans in Sudan to attract investment for the project.

6.2 Gas/Oil projects

As regards the West African Gas Pipeline (WAGP), a Project Company has been formed. However, as the Off-take Agreements have not been finalized, NEPAD would facilitate the conclusion of the Agreements and the mobilisation of resources for the public utilities' shares in the Company, including assisting the institutions concerned to access global funding.

As regards the Tunisia-Libya gas pipeline, a publicly owned Project Company has been formed and the Off-take Agreement concluded. The Government of Libya will finance part of the project to be implemented in Libya. NEPAD would be involved in facilitating the sourcing of financing for the Tunisian share in the Company.

Regarding the Kenya-Uganda oil pipeline, an Agreement is under consideration for the formation of a Company to construct and operate the proposed extension from Eldoret to Kampala. NEPAD would expedite the conclusion of the Agreement in addition to facilitating the mobilisation of funds for the project and monitoring the implementation of the project.

Regarding oil and gas projects, NEPAD would act as a catalyst for unified action at the continental level. NEPAD would also encourage countries that flare gas to take a continental approach to negotiations with the Global Environment Facility (GEF), the Carbon Fund, etc. with a view to

bettering the utilisation of this resource for the common good of the continent. In this regard, NEPAD would encourage the concerned countries to create a conducive environment for the participation of the private sector in the exploitation of this resource. NEPAD would work with the countries concerned to help generate political support for the adjustments in policy and regulatory frameworks that are needed.

6.3 Studies for Physical Projects

The studies will be sponsored partly by countries and partly by the sub-regional organizations. NEPAD would facilitate the mobilisation of funds for the studies.

6.4 Capacity Building and Facilitation

Given that the proposed Capacity Building and Facilitation Projects are continent-wide, it is proposed that the projects be implemented under the auspices of AFREC, in collaboration with the sub-regional organizations. However, as the Convention has not been ratified, AFREC has no legal entity. NEPAD's intervention is therefore required to get the Convention ratified to transform AFREC into a legal entity, and operationalise the institution.

In addition, NEPAD would facilitate the mobilization of funds for the implementation of the projects. NEPAD would also monitor the implementation of the AFREC and RECs Capacity Building and Facilitation Projects.

NEPAD would take an active role in facilitating the dissemination of the experiences and lessons learned in Africa and beyond regarding rural energy, energy efficiency and reliability of energy supply, the protection and management of the environment, including those concerning the protection and management of forestry resources supplying wood-fuels, charcoal as well as substitution programs (such as LPG programs).

NEPAD has an important role to play in supporting existing institutions and in building private-public sector partnerships. Energy sector reforms are taking place with increased competition and players. NEPAD would take the lead with initiatives designed to reduce the risks and the perceptions of investors with respect to private sector investments, through supporting the preparation and adoption of appropriate energy policies and strategies, and an Energy Protocol.

6.5 NEPAD Activity Matrix

NEPAD's activities are presented in Box 2.2

Box 2.2: NEPAD Activity Matrix for Energy Sector

Projects	NEPAD Action
Power Systems Projects	
Mepanda Uncua Hydropower	1,2,3,4
Ethiopia-Sudan Interconnection	1,2,3,5
West Africa Power Pool (WAPP) Program	1,2,3,6
Algeria-Morocco-Spain Interconnection (Strengthening)	1,2,3
Algeria-Spain Interconnection & Algeria Gas-fired Power Station	1,2,3
Mozambique-Malawi Interconnection	1,2,3
Gas/Oil Transmission Projects	
Kenya-Uganda Oil Pipeline	1,2,3,7
West Africa Gas Pipeline (WAGP)	1,2,3,6,8,9,10
Libya-Tunisia-Gas Pipeline	1,2,3
Studies	
Grand Inga Integrator	1,2,3
DRC-Angola-Namibia Interconnection	1,3
Nigeria-Algeria Gas Pipeline	1,3
Sub-Regional Interconnections (East, West, Central)	1,3
Capacity Building (Regional)	
AFREC Operationalisation & REC Capacity Building	1,3,11
Africa Energy Information System & Planning Tools	1,3,12
Training of Energy Experts	1,3,12
Facilitation (Regional)	
Policies and Strategies	1,3,12
Energy Protocol	1,3,12
Cooperation in new and renewable energy	1,3,12
Cooperation in improving energy efficiency & reliability of supply	1,3,12,13
Cooperation in Oil and Gas trade, refining/processing	1,3,12
Cooperation in rural energy	1,3,12,13

Legend (Activity Matrix)	
1	Facilitating mobilization of resources
2	Facilitating conclusion of agreements
3	Monitoring implementation of projects
4	Facilitating liberalisation of energy markets
5	Assist in resolving conflict and loan arrears issues
6	Help create conducive environment for attracting investment
7	Help finalise shareholding agreement
8	Facilitate adjustment of legal and regulatory frameworks
9	Assist in developing a coordinated approach to environmental negotiations
10	Catalyst for unified action in regional cooperation in oil/gas trade
11	Assisting in ratification of Convention and appointing Supervisory Bodies
12	Facilitating adoption and/or implementation
13	Disseminating lessons learned

7. CONCLUDING REMARKS

NEPAD would begin delivery on improving the quality of infrastructure, including energy, whilst consulting with and encouraging the business enterprises that Africa possesses, and courting international investment.

The necessary energy institutions, frameworks, structures, policies and strategies must be put in place to further energy sector development. Active input, through a participatory workshop process for the Facilitation and Capacity Building Projects from energy executives and operatives, not only in Africa, but also from the developed and developing world will be required to make the Short-term Action Program for energy infrastructure projects succeed.

The Short-term Action Program for regional projects will develop the continent's rich energy resources, through regional cooperation, and contribute towards poverty reduction and economic development in the continent in line with the objectives of NEPAD. Under the Capacity Building and Facilitation Projects, an enabling environment will be created for the Medium- and Long-term Action Program. For the successful implementation of Capacity Building and Facilitation Projects, the operationalisation of AFREC is considered critical.

CHAPTER 3

WATER SECTOR

1. INTRODUCTION

Water is the basis of life, and its proper management and conservation is essential for all socio-economic developments. It has been recognized that, due to its crosscutting nature, sustainable use of available water resources is critical to meeting the goal of eradicating poverty in Africa. Providing access to basic water supply and sanitation to a large number of Africa's population, contributing to food security through use of water for agriculture, and also developing the substantial untapped and renewable hydropower potential of the continent, are some of the key areas which need to be addressed if the war against poverty is to be won.

Many countries in African have potentially adequate water resources, despite the continent's temporal and spatial climate variability. However, despite this availability, it is estimated that of the continent's total population of 821 million, only 62% of these have access to safe water supply (with only 35% of the rural population having access to safe water). An even smaller percentage of the total population has adequate sanitation. Furthermore, despite widespread and deteriorating food insecurity on the continent, and the fact that agriculture is the main user of water in most African countries, in two thirds of them, less than 20% of the irrigation potential has been utilised. In addition, the continent has also the lowest per capita energy consumption in the world, the huge hydropower potential notwithstanding. To complicate the situation, degradation of water catchments is becoming a widespread environmental hazard with serious ramifications on water quantity, quality and on the continent's ability to feed itself.

Further to its direct contribution to sustainable development, water is linked to the other development programmes being considered under NEPAD. It is either used as an input to achieve integration of strategies and activities between sectors, or as a critical natural resource with competing demands thus requiring judicious and equitable allocation. Its quality has also got to be acceptable. The link between water development and most of the other programme sectors of NEPAD is demonstrated in Box 3.1.

The critical issues which need to be addressed in order to accelerate the development of water resources in the continent are: strengthening governance in water resources, improving water wisdom, meeting urgent water needs and strengthening the investment base for desired water future.

Both regional and international efforts have been and continue to be made to address the various problems encountered and which require to be resolved to enable rapid and effective development of the sector.

The latest initiative is the Africa Water Vision (2000), which has reinforced the general and broad consensus that, appropriate policies, legal and institutional frameworks are essential for any sustainable development of the water sources.

This Section of the report, elaborates on the Short-Term Action Plan for developments in the water sector proposed for support under NEPAD. Chapter 2 provides an overview of the water resources in Africa describing its

occurrence, distribution and characteristics. The current stage of utilization, key issues and challenges are discussed in Chapter 3 and Chapter 4 describes some of the initiatives underway at international, regional and national levels. Chapter 5 introduces the strategy, and short-term plan of action supported by NEPAD, comprising 11 programmes and initiatives. Detailed Project Briefs for each initiative is provided in the Appendix 3.

Box3.1: Relationship Between Water and Other NEPAD Programmes

Selected NEPAD Programme Areas	Demand for Water	Actions for Sustainable Supply	Impact Considerations
Infrastructure-Energy (Hydropower and other water using sources)	Reliable water flow	Construction of impoundments Management of land and forestry resources	Impact on health Address social issues Job creation
Infrastructure-Transport	Planning for transport on rivers, and lakes	Continuous supply of water	Accessibility Cost reduction
Infrastructure – Water & Sanitation	Reliable water supply	Storage and conveyance	Water pollution Efficiency of water use
Health	Hygienic sanitation	Sanitation services Hygiene education	Productivity Family income
Agriculture	Water for crops, fishery, livestock watering	Irrigation works Storage facilities	Pollution from fertilizers Overgrazing
Environmental Initiative	Water for eco-systems, aquatic resources, wildlife, wetlands		Weeds Ecological balance
Science and Technology	Water for research		Contributes to cost reduction, water use efficiency
Access to Markets	Water Supply & Sanitation		Contributes to schemes viability
Culture	Continuous clean flows	Storage works	Increased income from tourism

As part of the efforts being made to realise the Africa Water Vision and in line with the Framework for Action (FFA), the programmes and projects being proposed for support under NEPAD in the short-term are described under five broad themes: a) Enabling Environment for Regional Co-operation, b) Support for the Development of National Integrated Water Resources Management Policies; c) Meeting Urgent Water Needs; d) Improving Water Wisdom; and e) Strengthening the Financial Base for the Desired Water Future.

2. WATER RESOURCES OF AFRICA

Africa is the second largest continent covering a total area of 30,330,000 km^2. According to their geographical position, the countries of the continent present a large diversity of climatic patterns. The Food and Agriculture Organisation (FAO) has divided the continent into seven climatic regions, namely Northern Africa, the Sahel - Sudan, the Gulf of Guinea, West Africa, Central Africa, Southern Africa and the Indian Ocean (see Box 3.2).

Available water resources on the continent (see Box 3.3) are presently about 5000 m^3/per head/per annum on the average, but of uneven distribution. North Africa and the Sahel regions experience the worst constraints in the resources compared to the demand. In contrast, regions like Central Africa have more than adequate resources, which still remain largely undeveloped. Renewable available water resources (m^3 per head per annum) in each sub-region regardless of cross border transfers (the Nile) are broken down as shown in Box 3.2.

Box 3.2: Available Renewable Water Resources (in m^3/head/yr)

North Africa	:	390
Sudano–Sahel	:	1 940
Gulf of Guinea	:	6 000
Central Africa	:	27 400
East Africa	:	1 800
Southern Africa	:	3 000
Indian Ocean Islands	:	21 400

Most of the water resources in Africa are found in some 57 international river and lake basins the most significant of which are described below:

poverty, environmental threats, poor access to clean water and provision of sanitation are wide spread. There is substantial potential for increased

Box 3.3: Renewable Water Resources and their Use				
REGION	**Country**	**Area (1000 km^2)**	**Renewable Resources (km^3/year)**	**Level of Utilisation (km^3/year)**
North Africa	Algeria, Egypt, Libya, Morocco, Tunisia	5 753	50	76.3
Sudan-Sahel Region	Burkina-Faso, Cape-Verde, Djibouti, Eritrea, Gambia, Mali, Mauritania, Niger, Senegal, Somalia, Sudan, Chad	8 591	170	24.1
West Africa	Benin, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierra Leone, Togo	2 106	952	6.1
Central Africa	Angola, Cameroon, Central Africa Republic, Congo, Gabon, Guinea Equatorial, Democratic Republic of Congo (DRC), Sao Tome and Principe	5 329	1946	1.4
East Africa	Burundi, Ethiopia, Kenya, Uganda, Rwanda, Tanzania	2 916	259	6.5
Southern Africa	South Africa, Botswana, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Zambia, Zimbabwe	4 739	274	18.9
Indian Ocean Islands	Comoros, Madagascar, Mauritius, Seychelles	591	340	16.6

The Congo River Basin: The River Congo with an estimated total length of 4,400km and draining a basin of 3.60 million km^2 is the largest in Africa and contains 30% of Africa's total water resources. The river, with a discharge of approximately 1269 km^3 per year at its outlet, is shared by DRC, Central African Republic, Congo, Angola, Cameroon, Burundi, Rwanda, Tanzania and Zambia. Irrigation and hydropower potentials are abundant, with great possibilities for co-operation in joint development. Existing irrigation development is less than 1% of the potentials.

Nile River Basin: The Nile River Basin of approximately 3 million km^2 accounts for about 10% of Africa's total area. Ten countries share the basin namely: Burundi, DRC, Rwanda, Tanzania, Kenya, Uganda, Ethiopia, Eritrea, Sudan and Egypt. The countries have different endowment in water resources and throughout, the availability of water is highly variable both in space and in time. National approaches to water resources planning and management also differ from country to country. However common issues including pressure on the resources due to population growth, urbanization and development of reliable, low-cost power for example through expansion of hydropower production and through exploring opportunities for regional power trade. The long-term average annual discharge is estimated at about 83km^3.

The Niger Basin: The Niger River basin with a total area of 1,471,000km^2 spreads over ten countries including Algeria, Benin, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Guinea, Mali, Niger, and Nigeria and has an estimated population of 90 million inhabitants.

The Niger has immense potential, but the river has significant variations both in flows and water levels. Major developments are underway including construction of new dams and development of new navigable waterways. The Niger River has in general been affected by drought and soil degradation resulting from population growth, intensive agricultural activities, industrial expansion and urbanization. The increased growth of waterweeds has accentuated these problems in the past years and is in particular making navigation difficult.

The Lake Chad Basin: Lake Chad found at the fringes of the southern part of Sahel

Region is a huge narrow fresh water lake shared by Cameroon, Niger, Nigeria, and Chad. Its volume is low and area varies depending on rainfall patterns. More than 10,000,000 people live from the resources of this lake. Its basin is affected by intensive degradation due to population growth, economic activities and drought. In the last 15 years, water surface area has shrunk from 25,000 to 2,600 km^2 because of insufficient rainfall and extensive exploitation. The ecosystem of the lake and its basin are today heavily degraded.

The Zambezi River basin: The Zambezi River basin is shared by eight countries namely, Angola, Botswana, Zambia, Zimbabwe, Tanzania, Malawi, Mozambique, and Namibia. The average annual discharge of the system is estimated at 230 km^3. Two man-made lakes – the Kariba on the border between Zambia and Zimbabwe and the Cabora Bassa in Mozambique characterize the river's main geographical features. Besides hydropower, the basin has also got substantial irrigation potential which has only been partially utilised.

Other large river basins include the Senegal River Basin, the Okavango River Basin, the Gambia River Basin, the Volta River Basin, the Orange River Basin, the Limpopo River Basin, the Mano River basin and the Shebelli- Juba River Basin.

3. SECTOR STATUS, ISSUES AND CHALLENGES

3.1 Overview

In some African countries, as is the case in many other regions of the world, water resources are becoming rare for manifold reasons, among which are: population growth, economic growth, drought, pollution and also due to climatic changes. The situation is particularly compounded by the lack of reliable information on the available resources, the inadequate sectoral policies, poor coordination, weak institutional and legal framework as well as insufficient human, material and financial resources. Pressure is also growing on available resources as demand increases, a situation that has the potential for generating regional conflicts over shared resources if the right measures are not put in place to mitigate such eventualities. To address these problems, there is today a general and common consent worldwide, and particularly in Africa, for the need to develop national policies based on the principle of integrated water management, in order to fostering sustainable development. In the context of this, Africa presented at the last World Forum held at The Hague, a strategic vision on water resources management up to the year 2025.

This principle of integrated management was again proclaimed at the Water Conference held in Abuja on 29 and 30 April 2002, and also in particular called for the following: i) definition and setting up of national and regional water resource management policies/strategies; ii) implementation of institutional reforms; iii) building of technical and human capacities; and (iv) analysis and putting in place of new financial mechanisms to guarantee cost recovery whilst facilitating access of water and sanitation to the underprivileged.

3.2 Current Status

The major opportunities and challenges facing Africa are well elaborated by following analysis of present-day sector situation

3.3 Policies and Strategies

The formulation of water policies and strategies is often inadequate and some of the existing policies or those in the process of being developed are not always based on the principles of integrated water

resources management. The importance of appropriate policies and strategies is now widely accepted and 15 countries in Africa are at an advanced stage of elaboration and implementation of such policy frameworks.

3.4 Information on Resources

The World Meteorology Organisation (WMO) has found that in most African countries, physical data on river basins such as mapping, pedology, hydrology, hydrogeology, etc., is insufficient to enable accurate inventory and evaluation of water resources to be made; data on the quality of both surface and underground water is also limited. In fact, out of 40,000 known data surveillance stations installed in Africa, the greater majority is in poor running state, mainly due to institutional and financial constraints, making it impossible to provide minimal service requirements. National hydrological services also lack material and qualified personnel, with only a few having received further training in the last thirty years.

There is also a problem of harmonization, coordination and standardization of information between the different bodies operating in the same country. It has equally been observed that in some of the countries, important historical hydrological data may be threatened and could be lost forever. Institutional reforms are therefore indispensable if the availability of accurate data and information on water, which is inevitable for long-term planning, is to be improved.

3.5 Management of Large River Basins

Regional cooperation in the development and management of large river basins shared by several countries has been in existence in Africa since the early sixties. Most of the oldest basin organisations are found in West Africa, including the Senegal River Basin Organisation (OMVS), Niger Basin Authority (ABN) and Manu River Union (MRU), and Lake Chad Basin Commission (LCBC) in Central Africa. For the Southern African Development Community (SADC) region, formation of basin organisations is a relatively new phenomenon where except for the Zambezi River Authority, which was formed in the eighties, it is only now that new basin organisations for other basins including Okavango delta, the Limpopo, and Orange River are being formed.

To facilitate management of shared resources, more new basin organisations need to be put in place to cover most of the significant 57 shared river basins. At the same time, the performance of most of the existing river basin organizations leaves a lot to be desired. There is therefore an urgent need to provide necessary support to the existing organizations in order to make them effective tools of managing the shared water resources.

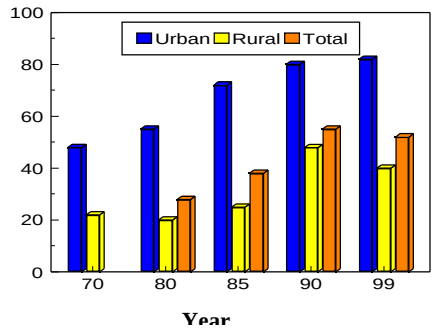
3.6 Access to Water Supply and Sanitation

Africa has a low percentage of access to clean water supply and sanitation services especially in the rural areas (around 35%) in spite of efforts made since the 1970s. It is estimated that more than 300 million people in Africa do not have access to clean drinking water and suitable sanitation. Figures 3.1 and 3,2 show that the positive trend observed in the 1970s remarkably declined as from 1990. Therefore, a lot of effort and resources are required in order to respond to the objective of improving the standard of living of the people and hence foster poverty reduction.

Besides rural population, most of the growing urban poor do not have access to adequate water supply and sanitation services. The number of the poor living in

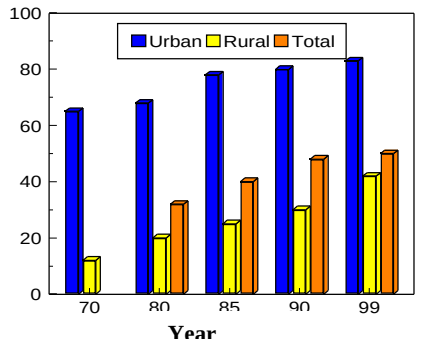
urban areas without these basic services is swelling as rural-urban drift continues with people seeking better job opportunities in towns and cities. While innovative methods of serving these people who normally live in informal settlements are being tried in different places, institutional reforms for the urban utilities has been found to be an essential ingredient for sustained success.

Fig. 3.1: Access to Sanitation (%)



It is illustrative that nearly all surveys on poverty have shown that reliable access to safe water is among the top three priorities of the poor.

Fig. 3.2: Access to Water Supply (%)



3.7 Irrigation

About 30 to 40% of the world's food comes from the irrigated 16% of the total cultivated land. The proportion of irrigated land in Asia in 38%, compared to Africa's 8 to 10% in spite of the existence of the large potential of about 47 million ha, in accordance with FAO estimates. Irrigation is mainly well developed in the northern regions of the continent as well as in the Sudano-Sahel region that accounts for about 70% of total irrigated land in Africa, estimated at 10,000,000 hectares.

Some of the major problems experienced with irrigation include inefficient and unsustainable use of water, inadequate cost recovery measures, degradation of the soil quality due to salinisation, and the risks of water-borne diseases. As such, the performance of the agriculture sector is generally poor and reforms are necessary in order to improve cost recovery and conserve resources. In addition, there is a need to introduce water saving techniques through use of appropriate technology, considering that the regions that rely on irrigation most are the same ones with the least resources.

3.8 Degradation of River Basins

The degradation of river basins under the combined effect of intensive agriculture and deforestation has become an ecological problem with negative repercussions on the quality and quantity of available water resources. To arrest the situation, many basin and sub-regional organisations are initiating programmes to address the growing problem.

3.9 Drought and Desertification

Some regions of Africa have been hit by continuous drought, the causes of which include deforestation, over-grazing, soil erosion, and over-exploitation of underground water in arid zones. It is now acknowledged that desertification is strongly linked to water resources management methods. This situation that particularly affects the Sahel and Maghreb regions, calls for an immediate study and implementation of control techniques in the regions.

3.10 Water Quality

The degradation of water quality has become a cause for concern in some countries in the region because of cultivation methods and inadequate treatment and management of domestic and industrial wastes. The situation is of great concern in certain international rivers like the Senegal, the Niger and Lake Victoria, where the proliferation of water weed has begun to negatively impact on the river flow regimes, navigability, hydropower plants, irrigation in the rice-fields, etc. In some cases, positive steps have been or are being undertaken e.g. Lake Kariba on the Zambezi River and for Lake Victoria to control the problem of aquatic weeds.

3.11 Fishery and Recreation

Fishing activities have been reduced or disturbed for various reasons like drought that is reducing the capacities of some rivers and lakes, and the proliferation of aquatic plants, as in Lake Victoria.

3.12 River Transport

River transport in some water ways like the Senegal, Niger and the Congo rivers is not practicable on all sections and at all times due to irregular discharge, silting and massive presence of aquatic plants, etc.

3.13 Hydropower

It is estimated that only 4-5% of Africa's energy demands are met through hydropower in spite of proven large potential. Small-scale hydropower potential particularly for rural energy supply is hardly exploited. Future prospects include integrated planning and development of multi-purpose schemes that take into account power generation, irrigation, fishery, recreation and transport together with ecological considerations.

Conclusion

To meet these current challenges and ensure sustainable development, African countries have agreed on the need to (i) initiate institutional reforms; (ii) build analytical and managerial capacity; (iii) implement protection measures for the environment, in particular, the control of drought and desertification as well as the erosion of river basins; (iv) improve access to clean water and sanitation; and (v) set up new financing mechanisms to ensure the financing of infrastructure**.**

4. INITIATIVES

4.1 Africa Water Vision for 2025

Over the past several decades, a lot of important international initiatives have been initiated to help achieve sectoral objectives such as: provision of safe drinking water and adequate sanitation, expansion of areas under irrigated in order to improve food production, increasing energy supply through hydropower development and protection of the environment. The most recent, most comprehensive and most important water initiative for Africa is the Africa Water Vision for 2025, presented in the last World Forum held at the Hague in 2000.

Box 3.4: AFRICA WATER VISION:

"An Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional integration, and the environment".

The Vision has an associated Framework for Action (FFA) and a set of milestones and targets for actions needed in Africa. It has identified a set of key challenges: 1) how to meet the water supply and sanitation needs, 2) how to arrest the growing water scarcity in parts of the continent, and 3) how to ensure water

security for life, development and environment. Refer to Box 3.4 and 3.5 for the Vision Statement and Messages.

Some of the targets set for 2005 include: proportion of people without access to safe water supply and adequate sanitation to be reduced by 25% and achievement of food security of 60%.

Box 3.5: 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***
- ***Use water resources wisely to promote agricultural development and food security***
- ***Develop water resources to stimulate socio-economic development.***
- ***Treat water as 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.***

It has also been noted that the level of investment in agricultural water use in Sub-Saharan Africa (SSA) has been on the decline in the last 10 to 15 years causing negative impact on food security and generally on the agricultural based economies of many countries. There is an urgent need for reviewing the endogenous and exogenous factors with a view to revitalizing the sector. The collaboration of ADB, FAO, IFAD, IWMI and World Bank is aimed at the development of a strategy for investment in agricultural water use in SSA.

In order to accelerate development of the sector, African Water Ministers have established an African Ministerial Conference on Water (AMCOW) and a Secretariat (Abuja, 29-30 April 2002) to guarantee sustained political will and commitment, exchange experiences such as best practices in key areas as policy reforms, enhance and solidify intergovernmental and regional co-operation in the management of shared waters, and devise common strategies. Other on-going initiatives include: the UNDP-World Bank Water and Sanitation Programme (WSP), and the Water Utilities Partnership attached to the Union of African Water Distributors.

Initiatives in the water sector proposed for support under NEPAD are described below. Some of these are either planned or are at various stages of implementation, and it is expected that NEPAD would lend support either for their fruition, or for replication in other regions of the continent.

4.2 Regional Initiatives

MAGHREB

Efforts made or underway need to be pursued, especially with regard to water saving and desertification control measures. Taking into account severe water resources shortages in these countries, reforms on water-saving devices, protection of water quality and soils are indispensable to guarantee a sustainable development of available resources.

Niger River Basin

A number of global initiatives and programmes undertaken or on-going are aimed at strengthening hydrological data measurement and observations system, improving management of the resources and the provision of potable water for the under privileged population, protection of the river basin catchments, and control of the proliferation of aquatic plants. It is expected that these measures would go a long way in educating the populations and building managerial capacities. Nevertheless, the actions taken remain inadequate, in view of the multiplicity of problems and weaknesses in the capacities

of the agencies responsible for the management of the resources.

Lake Chad Basin

Faced with the problem of severe degradation of the ecosystems of the Lake Chad Basin, and considering the risks of pollution posed by the development of oil and mining industries, and the use of pesticides in agriculture, a programme of protection was drawn by the Lake Chad Basin Commission (LCBC) in 1998 with UN support. The purpose of this plan spanning a period of twenty years is to establish concerted, integrated and sustainable management of natural and water resources within the basin. The plan also aims at transferring water form the Congo River Basin to the Lake Chad. This action plan requires building of LCBC capacity to enable it to fully play its role in the implementation and monitoring of these projects.

Central Africa

Central Africa countries - Angola, Cameroon, Gabon, Chad, Central African Republic, Congo and the Democratic Republic of Congo are preparing to implement and integrate water resources management policy through the creation of a new joint institution. This initiative should be backed by assistance in the conduct of a study on the harmonisation of policies and legal framework as well as the financing mechanisms to be provided to secure the institution's viability.

West Africa

In the past few years, countries in West Africa have conducted a regional water management study. This process was crowned by the adoption in December 2000 by the Heads of State and Government of the Economic Community of West African States (ECOWAS) of an action plan based on the principle of integrated water-resources management for the whole region. The realization of this action plan is subject to the mobilization of the requisite financing.

SADC

In order to meet the challenges of providing adequate water service and supply and protection of the environment, and in recognition of the need for regional integrated water resources development and management in the shared water courses, the SADC region has adopted the *Regional Strategic Action Plan for Integrated Water Resources Development and Management (1999-2004).* The majority of the member states have signed the "Protocol on Shared Watercourse Systems". A number of supportive programmes and projects have been identified in support of the strategic objectives and are at various stages of implementation.

Nile Basin Initiative (NBI)

The ten countries of the Nile, representing more than 300 million people, have come together within the Nile Basin Initiative and developed a common vision *"to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources"*. To translate the shared vision into reality parallel programs namely: the Shared Vision Program (to build confidence and capacity across the basin) and Subsidiary Action Programs (to initiate investments and action on the ground at "local levels) have been prepared. Implementation is in progress for those activities where finance has been secured.

IGAD

In order to address the challenges posed by climate extremities in the region, the member countries of IGAD have identified the need to cooperate in the

implementation of water resources assessment and capacity building. In particular, as the region is exposed to recurrent drought and flooding, knowledge of water resources (data generation, assessment and dissemination) is an important input for disaster prevention, and management. Cooperation of the riparian states is essential for the prudent management of shared watersheds and water bodies. Accordingly, the IGAD HYCOS project is under an advanced stage of preparation, with the first stage of situation and need survey to be commenced as soon as project financing is arranged.

4.3 National Programmes

In line with their regular programmes, and with the support of the international partnership, some African countries have embarked on national sector reforms deemed necessary for effective development of the sector. A total of 15 countries are at an advanced stage of implementation of sector reforms based on the principle of integrated water resource management. This process will need to be replicated by other member states within same regions to facilitate effective management of shared water resources.

5. PROPOSED ACTIONS

5.1 Strategic Approach and Planning.

Besides the common selection criteria for the short-term action programme, for the water sector, the areas identified for support under NEPAD are those considered essential to advance the achievement of the Africa Water Vision for 2025. The proposed approach has a number of objectives: i) to prepare the enabling environment conducive to full participation by both the public and the private sectors in the sustainable development of water resources; ii) to develop the water resources through cooperative efforts based on both national regional initiatives in order to meet the basic service needs and promote food security through effective and efficient use of water for irrigation; iii) strengthen the necessary knowledge base required for effective management of the resources.

In addition, the interventions proposed for NEPAD support are those that support regional co-operation, are ready for implementation or have already started, require financial support, and can be replicated in other regions.

5.2 Short-term Action Plan

As indicated above, the proposed programmes and initiatives are selected on the basis of their contribution in addressing the main issues and challenges in the water sector and fall within the context of the Africa Water Vision and its Framework for Action. The proposed projects and programmes are described under the five broad themes (see Box 3.6). The total financing required for these short-term action plan is estimated as US$ 135.2 million. Detailed Project Briefs for each of the projects is attached in the Appendix 3.

Box: 3.6: Short-Term Action Plan Programme Themes
Theme A: Enabling Environment for Regional Co-operation; Theme B: Support for the Development of National Integrated Water Resources Management (IWRM) Policies; Theme C: Meeting Urgent Water Needs; Theme D: Improving Water Wisdom, and Theme E: Strengthening the Financial Base for the Desired Water Future

Theme A: Enabling Environment for Regional Cooperation

The multiplicity of shared water resources in Africa pose a significant challenge for integrated management of these resources. NEPAD will align itself with and support

riparian-led initiatives that enhance their cooperation in the planning, development and management of shared water systems. Effective institutions are essential for efficient management of shared water resources and provide effective tools for regional integration and economic development. Accordingly, existing river/lake basin organizations need to be strengthened and new ones created as necessary. Three projects are proposed that support such initiatives.

Water Resource Planning and Management Nile Basin: This project will enhance capacity of member states of the Nile Basin Initiative to implement integrated water resources management policies and capacity building necessary for the development and management of multi-country projects. The total cost of the project is US$ 28 million with a financing gap of US$ 8.2 million. The project will be implemented over a 6 years period.

Support of Other New and Existing River Basin Organizations: The project will provide a review and support two selected existing river basin organizations, in order to make them more effective institutions of efficient management of shared water resources. It is expected that there will be future replication of the project for other basin organisations. The estimated cost of the project is US$ 11.5 million with a project implementation period of 5 years.

Action Plan for the Integrated Water Resources Management in West Africa: The project has the objective of promoting regional co-operation, creating and/or revitalizing cooperative frameworks between riparian countries through capacity building and through implementing integrated water resources management. The project will cost US$ 24.0 million and planned for completion within 5 years.

Water Resources Management in Central Africa

It is estimated that the total available renewable water resources for Central Africa region amounts to about 2,000 billion m^3/year, of which only a minute portion (about 1.5 billion m^3) is actually utilised.

Central Africa Countries: Angola, Cameroon, Gabon, Chad, Central African Republic, and the DRC, took in 2001, the decision to set up a sub-regional institution to be responsible for integrated management of water resources. The mission of this institution will be to: (i) set up of a hydro-climatic observation and measurement system; harmonization of national policies and legal framework; (iii) explore the viability of and financing required for water transfer projects, and for navigation on the Congo River; (iv) study and put in place protection measures for water resources and the ecosystems; and (v) educate and solicit participation of all water users. It is proposed to carryout a study to define appropriate institution arrangements and analyse the financing mechanisms of its activities. The total cost of the study is estimated at US$ 6.5 million.

Theme B: Support to Development of National IWRM Policies

The basin wide interventions described above will only be successful if they are supported by appropriate policies and regulations at the national level. While some countries have gone a long way towards meeting this goal, others are lagging behind. Recognizing this, the Africa Water Vision has set as a priority the need for all countries to develop national IWRM policies and institutional reforms including capacity building by 2005, in order to improve governance of water resources. This will enable the exploitation of synergies between

strategies and programmes at the national and water basin levels and will provide the building blocks for the programmes of the water basin organizations as they seek to establish appropriate cooperative water management and development agreements. In the quest for improved governance in water resource management, an analysis will be carried out using the example of the SADC REC to examine the extent to which harmonised national water resource management policies support regional efforts, to identify constraints and to propose a support programme for countries that have yet to put in place appropriate national policies. Some aspects of the project could be applied to other countries and RECs in the medium-term.

Support for the Development and Implementation of National Water Sector Policies and Strategies – SADC Region: The project will support the development, harmonization and implementation of national water policies and strategies in preparation of coordinated management of river basin organizations and implementation of the provisions in the Protocol on Shared Watercourses. The project cost is US$ 5 million and scheduled to be completed within a period of 8 years.

Theme C: Meeting Urgent Basic Services

Substantial efforts will be required to implement the Framework of Action of the Africa Water Vision if the challenges of the Vision have to be overcome. Particularly important will be the need to translate water resource management agreements into micro-level, on-the-ground improvements in access to basic water supply and sanitation services, improve the environment, and complement the macro-level agreements on hydro power, flood control and irrigation. Two projects have been identified for implementation on the pilot basis. If successful, these types of operations could be replicated in other basins as part of the medium and long-term action plan of NEPAD. Two projects are:

Rural Water Supply and Sanitation Programme in the Niger Basin: The project will promote regional cooperation through assistance in the provision of basic water supply and sanitation services, for drought affected large rural communities in the member states of the Niger river basin. The project cost is US$ 30 million and to be implemented over a 3 years period.

Combating Drought and Desertification in the Maghreb: The project will promote regional co-operation through implementing frontier pilot schemes in an effort to combat against sand invasion, techniques for water mobilization, and information system on desertification and the environment. The project cost is US$ 6.25 million and will be implemented over in an estimated period of 5 years.

Theme D: Improving Water Wisdom

In many parts of Africa, data on the quantity, quality and temporal variation of ground and surface water resources is either unavailable or inaccessible. This makes it difficult to plan and develop available water resources in a sustainable manner, and also makes it difficult to resolve water related issues such as flood warning, water scarcity and quality deterioration on sub-regional scale. Based on the Sub-Saharan Africa Hydrological Assessment, the African Conference on Water Resources: Policy and Assessment had prepared the African Water Resources Strategy and Action Plan for water resources assessment in Africa, which was later endorsed by the Council of Ministers during the Twelfth World Meteorological Organisation (WMO) meeting. The strategy provided concrete measures for development and sustainable water

resources assessment and recommended that implementation of the actions proposed be carried on a sub-regional basis. The Accra Statement on Water and Sustainable Development of May 2002 recommended similar measures.

It is known that most of the monitoring networks are in a poor state, are often incompatible, and historical databases are not well maintained and some of the information is no longer accessible. This is attributed to lack of recurrent budgets for operation and maintenance of the networks, and lack of capacity in the responsible institutions. In order to overcome these shortcomings, there is a need for urgent rehabilitation of the network, capacity building for the responsible institutions, as well as adequate allocation of financial resources by national governments.

The objectives of these programmes are to assist member states and their sub-regional organizations to co-operatively improve and expand the ground and surface water knowledge base, and build capacity at both national and sub-regional institutions, for information generation, assessment, and dissemination. The proposed projects are:

Water Resources Assessment in SADC: The programme will support assessment of both ground and surface water resources in the region, processing and dissemination of information in sustainable manner, and support information exchange for co-operative management of shared aquifers and river basins. The project cost for the pilot programme is US$ 30.8 million, with project being implemented over a 4 years period.

Implementation of IGAD-HYCOS: The project will support the rehabilitation/construction of data collection platforms, processing, and development of sustainable information system in support of co-operative management of shared river basins. The project cost is US$ 2.1 million, and will be completed within 4 years of its commencement.

Strengthening of the ABN Inter-state Forecast Centre (CIP): The programme will consolidate the advances made under the HYDRO NIGER project in West and Central Africa by supporting data generation, processing and creating favourable condition for the CIP self financing. The programme cost is US$ 10 million with completion envisaged in 3 years.

Theme E: Strengthening Financial Base for Desired Water Future

As mentioned in the introduction, substantial financial resources are required to realise the Africa Water Vision. It is estimated that approximately US$ 20 billion per year to provide the required services. This level of financing requires a renewed, bold commitment and approach by all stakeholders. The bulk of these resources will have to be generated locally from governments, communities and the private sector. Substantive support by the international community shall also be required. However, considering that most of the investment will go to finance basic services for the continent's very poor, which makes it difficult to attract the private sector and the inability of most governments to raise public funding for these services, innovative ways of raising the financing required are required. There are increasing calls to establish an African Water Facility or African Water Fund (as recently articulated by the Ministers of Water at their meeting in Abuja (29-30 April 2002). In the short term, the NEPAD Short-term Action Program will support a study to identify modalities for raising the huge funding required as well as mechanisms for its administration in order to achieve the targets set by the Africa Water Vision.

Study to Improve Financing Mechanism for Development of the Water Sector: The study will assess mechanism for identifying and administering the large financing needed to meet the Millennium targets of the water sector, including the possible establishment of a sector fund. The study is estimated to cost US$ 0.6 million with planned completion in 9 months.

5.3 Implementation

Implementation of projects to be supported by NEPAD is mostly through the co-ordination of sub-regional organizations with the co-operation of water sector national agencies. The implementation agency for each project is identified in the respective detailed brief. NEPAD will not have an executive role but will monitor progress through agreed indicators. Most of the projects proposed for the short-term action plan will be completed within a period of 5 years. Those projects that are piloted in selected countries will continue to the second phase taking into account best practices achieved. The implementation period for this group of projects will extend by at least the equivalent duration taken by the first phase projects.

5.4 Mechanism for Monitoring

Peer review will be brought to bear by the proposed Peer Review Committee set-up for this purpose. Review reports on progress made on project implementation and highlighting agreed monitoring benchmarks should be the basis of the Peer Review process.

6. THE ROLE OF NEPAD

In the context of the developments proposed in the water sector, the role of NEPAD comprise support to improve water governance necessary for the full development of the this resource in order to meet the basic, economic, agricultural and environmental needs of water. NEPAD support is also required for enhancement of national and regional co-operation for effective planning and integrated management of shared water resources, as well as lend support for the mobilization of increased financial investment required to meet the Africa's Water Vision targets.

6.1 Water Sector Governance

One of NEPAD's commitments is to strengthen good governance in all sectors. For the water sector, this translates into instituting mechanisms and relationships that are rule based, transparent, accountable and participatory. In the first place, public sector institutions will be encouraged to continue building on and improving their policies to facilitate integrated and co-operational management of these resources. Public sector organizations will need to build their capacities to review and implement such supportive policies, strategies and regulations, with special emphasis on creating the enabling environment for public-private partnership, and for empowerment of communities. NEPAD will advocate capacity building and promotion of good practices through focussed reviews and statistical publications and country status reports.

6.2 Improve Access

Political support is important in providing increased resources and commitment to improve access to basic water services for the many millions still unserved as well as for socio-economic development. The urgency of increased service provision is amplified by the fact that over half of Africa's population is food insecure and has no access to basic water supply and sanitation. NEPAD will lend its support to get both national governments as well as

the international partners to accord high priority for the development of this sector.

6.3 Partnership for Managing Shared Watercourses

In order to advance the principle of cooperation in the joint management of shared water resources for the benefit of all riparian countries, NEPAD support will be required to engage co-basin countries in dialogue aimed at addressing any differences and adoption of win-win approaches. Sharing of good practices will be encouraged towards adopting protocols on shared water systems, water sharing agreements, and the establishment or strengthening of river basin organizations.

6.4 Enhancing Knowledge Base, Sustainability of Installations, and Capacity to Manage Extreme Events

In order to utilize and manage water effectively and efficiently, the need to improve the water knowledge is overriding. NEPAD support will contribute to the promotion of best practices and ensuring fulfilment of national commitments in installing and maintaining data gathering networks as well as adopting unified information systems.

6.5 Mobilizing the Financial Resources

In spite of the key and central role water plays in socio-economic development, this awareness is not matched with the requisite financial resource allocation. Budgetary allocations would need to be increased as well as the support by Africa's development partners for the sector in commensurate with the demand. NEPAD would influence the high priority that should be alluded to water through increased budgetary allocations by governments, and also facilitate adoption of policies that encourage community empowerment and private sector participation, together with decentralisation of the management of the resources at the lowest appropriate level. In addition, NEPAD would persuade each country to minimise and manage risks in order to attract private financing in the sector. NEPAD would also use its influence to mobilise additional funding (US$135.2 million) through international partnership. NEPAD will facilitate in the identification of the right mechanism for sourcing and administration of the large financial outlay, required to meet the Millennium targets for Africa.

CHAPTER 4

TRANSPORT

1. OVERVIEW

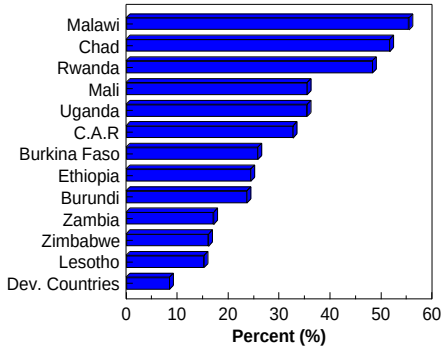
Transport infrastructure and services are at the heart of regional integration as they support the movements of people and goods across borders. Africa's internal and international trade flows through its roads, railways, inland waterways, ports and airports.

Africa's transport systems are poorly integrated and inefficient. They impose a high cost premium on trade, travel and business and have a crippling effect on Africa's trade competitiveness and its ability to participate in the world economy. High transport and insurance costs add to the cost of imports and cut into the net income from exports. Fig. 4.1, based on UNCTAD 2001 reports, shows that for a number of landlocked African countries transport and insurance represent more than 30% of the total value of exports, compared with an average of 14.6 % for all landlocked countries and 8.6% for developing countries as a whole.

To reduce poverty and reverse the economic marginalisation of Africa there is the need to address infrastructural, operational and facilitation deficiencies in transport. The goal is to close Africa's gap in transport infrastructure and services, by

- reducing the costs and improving the quality of services;
- increasing both public and private financial investment in transport infrastructure;
- improving the maintenance of transport infrastructure assets;
- removing formal and informal barriers to the movements of goods and people and
- supporting regional cooperation and the integration of markets for transport services.

Fig. 4.1: Transport and Insurance Cost as a Percentage Value of Exports



Source: UNCTAD-Report on Transit Systems of Land Locked and Transit Countries, 2001

Underpinning development activities in all sub-sectors is the objective of strengthening *sector governance* arrangements that are rule-based, predictable, transparent and participatory. As governments complete their withdrawal from the direct provision of services, they face the challenge of developing their capacity for policy making, effective regulatory oversight and monitoring. A critical aspect is to secure the participation of stakeholders, including users and service providers, in policy development and overall planning. Another challenge is to establish regulatory frameworks that foster competition and support the emergence of regional markets for transport services.

Africa's plan of action in transport will focus on issues whose solutions depend on regional cooperation and implementation of regional projects. However, since the majority of the target group, the poor, lives in rural areas, a general concern is also about what individual countries do to improve access, quality and affordability of rural transport and, hence, to effectively link the communities with national and regional transport systems and markets. In this respect, the regional plan of action

will promote knowledge sharing and the dissemination of good practice regarding rural transport development strategies drawing on the global and regional experience and working through ongoing initiatives in particular the RTTP (Rural Travel and Transport Program) of the SSATP.

NEPAD Transport Programs

The above goals and objectives will be pursued under programs targeting specific sub-sectors and institutional constituencies. The short-term action plan is primarily based on the programs of the RECs, and have been grouped by sub-sector and institutional constituencies; they include: facilitation of traffic flow along corridors including multi-modal transport, roads, railways, ports, maritime safety, inland waterways and aviation.

Regional and national institutions, under the coordination umbrella of the relevant RECs, will implement NEPAD's short-term transport action programs in each sub-sector. NEPAD will facilitate collaboration and exchanges between REC's and will help muster political support for needed reforms and joint actions. NEPAD will support bench marking and progress monitoring using appropriate indicators. NEPAD will challenge and assist countries, REC's and other organizations concerned to expedite the implement international conventions and regional protocols. The sub-sector programs include the following elements:

1) supporting policy and institutional reform to complete the reform agenda in the various sub-sectors and to strengthen sector governance so as to create an enabling environment for competition and investment;
2) capacity building related to regulatory oversight, monitoring and the participation of business organization and professional associations.
3) selected physical projects included in the REC's programs and for which studies are available. These are regional projects in the sense that they deal with air and maritime gateways, or serve transit corridors either by supporting upgrading and improvements or by removing bottlenecks and filling gaps
4) studies to prepare additional further projects; and
5) monitoring, knowledge sharing, peer review through REC's and relevant technical organizations to develop benchmarks and targets, and to facilitate the exchange of experiences and good practices. The objective being to accelerate the pace of innovation, to track progress, and to identify and help the remediation of constraints.

NEPAD will provide strategic leadership by mobilizing political action and financial resources in order to secure completion of needed reforms and to facilitate planning and implementation of critical sector development programs and projects by countries, RECs and other designated regional institutions. NEPAD's success will depend on its ability to accelerate the pace of reforms that will create the enabling environment for stepping up the flow of investments in transport infrastructure and services.

NEPAD will help to develop a common vision for transport among Africa development institutions and partners, on the policy changes and institutional reforms needed to ensure that better maintenance and the expansion of physical capacity as well as better management, resulting from institutional reforms and increases in investments, are effectively translated into better and cheaper services for all.

All transport programs will focus on ways to enlarge the *participation of the private*

sector in operations as well as in financing through concessions, BOT, maintenance and management contracts, etc., with the overarching objectives of broadening competition among private service providers and facilitating access to commercial financing from domestic, regional or international sources. NEPAD will in particular promote the use of mechanisms to cover perceived political and country risks such as the Africa Trade Insurance Agency, as well as guarantee schemes set up by the AfDB and the World Bank Group.

Knowledge sharing, networking and dissemination of good practices among countries, REC's and technical agencies is essential to ensure a sustainable development and integration of transport systems in the continent. The experience gained by African countries and RECs over the last ten years provides a wealth of lessons and good practices. NEPAD will target its support at strengthening the capacity for knowledge sharing and networking at the sub-regional and regional levels, working through ongoing initiatives in particular the SSATP program (Sub-Saharan Africa Transport Policy).

The restoration of *infrastructure services in post-conflict situations* is always a high priority and raises particular challenges. It is important to start as soon as possible to prepare the transition from the initial emergency phase to the reconstruction and development phases. An early focus on policies and institutional structures is necessary to impart coherence to capacity building initiatives and to address sustainability issues. Infrastructure repairs and reconstruction programs are a source of employment and can help to strengthen the social fabric through community involvement and, to contribute to overall stability. The challenge is to organize them at sufficient scale in the face of severe capacity constraints. In addition to the programmatic approach outlined above, NEPAD will foster support for comprehensive and sustained infrastructure reconstruction programs in post conflict countries: DRC, Angola, Congo, Sierra Leone and Guinea Bissau. NEPAD will also support exchange of experience to draw lessons from emerging experiences.

In order to accelerate the flow of investment into the transport sector, NEPAD will work with REC's, countries and their development partners as well as private stakeholders, to define guiding principles and planning framework for investments in *regional transport corridors.* A recurrent problem has been the difficulty of forecasting the role of transport infrastructures as generator of economic activities, and their ability to open-up the potential of hitherto isolated regions.

To succeed in mobilising the large amount of investments required for facilitating increased trade and unlocking Africa's vast dormant or under-exploited economic potential, NEPAD will promote innovative approaches to planning and resource mobilisation.

From recent experience, particularly in Southern Africa, mobilising resources for infrastructure projects can be more effectively achieved when the projects are presented and marketed in the context of overall economic development perspectives of a specific corridor. This multi-sectoral economic development corridors (DC) or spatial development initiatives (SDI) approach places emphasis on simultaneous exploitation of the variety of interdependent development opportunities arising within the various sectors. The adoption of this approach in most of the traditional transport corridors in Southern Africa has been spearheaded by the success of the Maputo Development Corridor program (Box 4.1). NEPAD will

promote exchange of knowledge on such initiatives and as appropriate support their use.

NEPAD will also ensure that the measures for control and prevention of HIV/AIDS are mainstreamed in all its programs, particularly those dealing with transport corridors. This will be achieved in coordination with other organizations involved in HIV/AIDS programs.

Projects in Short-term Action Plan

The short-term action plan has been developed with the objective of ascertaining that there are enough ready-made opportunities for interventions and projects to kick start the sub-sectoral programs outlined below. At this stage the list of projects is not exhaustive. Ports and railway investments would be linked with PPP reform; their ability to attract private interests would therefore be the decisive factor for their financing. In that sense the list for ports and railway are open ended. The situation for roads is different, as most of the regional roads will be financed by public funds and therefore subject to rationing and prioritisation on the basis of economic criteria. The review of the available road programs by the RECs has shown that the pipeline of regional projects, which have been studied at least to the feasibility study level, is well in excess of US$1.2 billion. The road projects to be included in the short-term program will be determined later in consultation with the RECs.

Implementation Support

Most of NEPAD work in transport will be to accelerate the response to familiar problems. NEPAD objectives in transport are not new, they deal with long-standing challenges and they support approaches that have already been tested in Africa. What will be new under NEPAD are the political support and the sense of urgency and collective responsibility for results.

In order to alleviate this constraint, NEPAD will pursue the establishment of a facility to provide technical support and facilitation services to REC's and the technical implementing agencies.

The proposed Regional Transport Reform and Integration Support Facility for Africa (TRISFA) would be a trust fund modelled along the lines of the Private Participation in Infrastructure Advisory Facility (PPIAF) of the World Bank Group or the recently established EC funded capacity building project for Southern Africa (the component targeted specifically at the implementation of protocols on transport and trade facilitation). Both of which are structured to provide just-in-time demand responsive support to agencies spearheading reforms and changes.

Summary of Short-term Actions

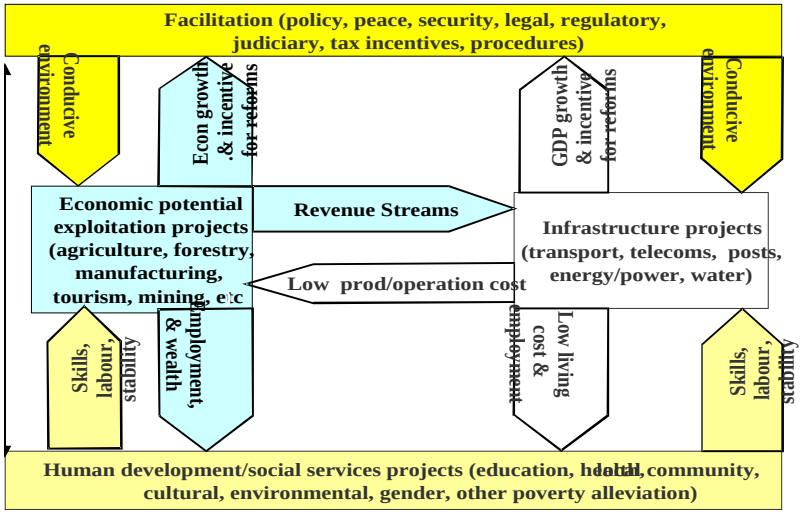
Over the next year, NEPAD will support the REC's in the preparation of action plans to deal with the challenges targeted by NEPAD transport programs; the purpose would to set targets for improvement and review roadmaps to reach them. NEPAD will also support exchanges between REC's, countries and technical agencies on important sub-sectoral programs (e.g. facilitation) and cross-cutting themes (e.g. Development Corridors and the planning of regional projects). The overall medium to long-term infrastructure strategy to be prepared by NEPAD will provide a framework for further review of their programs. A summary of components of the short-term actions and resource requirements is presented in the Box 4.2. Further details are provided in the subsequent sections of the report.

Box 4.1 SADC Regional Development Corridors Programme

The Maputo Development Corridor (MDC) initiative was launched in 1995, as a joint undertaking of the governments of Mozambique and RSA, with the support of SADC. The Maputo corridor links the South Africa's Northern and Gauteng provinces with their closest ocean gateway: i.e. the port of Maputo. The initiative was established to primarily facilitate broad based economic growth along the corridor and was guided by the following broad objectives:

- To rehabilitate the core infrastructure along the corridor with minimum call on public funds;
- To maximize investment in opportunities along the corridor;
- To ensure that the development impact on neighbouring local communities is maximized.

Components & Interdependence of SDI/DCs program and projects



To date, the road link has been reconstructed under a $250 million BOT toll road project. Maputo port is being rehabilitated and under a 15-year management concession agreement. Concessions have also been awarded for the rail links. The capacity of the power link between RSA's grid and Mozambique has been expanded to meet the demand from the MOZAL aluminium smelter established just outside Maputo. The telecommunications links have been improved including the commissioning of the first mobile phone service in Mozambique. An industrial park is being developed in Maputo. Further industrial projects are planned including iron and steel, gas and chemical industries.

The private sector has so far invested more than US$ 6 billion in the MDC projects, out of which US$ 600 million has been committed to key infrastructure projects. These investments in new industry or processing ventures and infrastructure are estimated to have created more 15 000 jobs. The MDC is considered to have contributed significantly to make Mozambique one of the fastest growing economies in Africa. The success of the Maputo Development Corridor has boosted support within SADC for the concept of multi-sectoral economic development corridors. The approach, also referred to as spatial development initiatives (SDI), is now being widely used by SADC countries. Some of the key principles and strategic objectives underpinning the DC-SDI approach are:

- focus on existing transportation development corridors with proven under-utilized economic development potential
- greater regional competitiveness via regional integration and collaboration
- emphasis on the role of the private through direct investment and partnerships
- local beneficiation of resources and linkages with development in neighbouring regions and communities.

Based on: SATCC: An overview of Southern African Regional Development Corridors Vol. 2, April 2001
The Regional Spatial development Initiative Support Programme: Creating New Wealth in Southern Africa, December 2001

Box 4.2: Summary of Transport Short-term Action Plan	US$ (million)
Trade corridors without borders and barriers (Transit facilitation)	38
Better and safe roads (Institutional, physical works and studies – only illustrative of possible global finance needs for programs/projects ready for implementation)	1,250
Competitive and seamless railways systems	196
Efficient ports	258
Safe seas and ports	6.9
Inland waterways	8.2
Liberalization of air transport and upgrading of air safety and security	244
Regional Transport Reform and Integration Support Facility	20
Total-Transport Sector	2,021

2. TRADE CORRIDORS WITHOUT BORDERS AND BARRIERS

2.1 Objective

The overall objective is to minimize transit times and associated transit costs along the main trading routes of Africa, particularly those linking the landlocked countries with external trade gateways, principally the seaports. The specific objectives of the programs are to i) eliminate causes of delays at all components of the transport or logistic chains including ports, along surface transport modes, at borders and the inland customs clearance depots; and ii) promote the development and use of multi-modal transport and develop capacity for efficient logistic chain management

2.2 Challenges

Transit traffic along trading routes faces a myriad of non-physical barriers, including cumbersome and unpredictable clearance procedures in the ports, at border crossings, and at inland terminals, as well as inefficient operations within modes and at modal interchange points. The cost of such delays is huge in terms of idle time or sub-optimal utilization of vehicles and economic opportunity cost. For example, a road trip between the port of Mombasa and Bujumbura still takes an average of between 12 to 15 days to cover 2042 km. Assuming ideal conditions, this trip could be covered in one third of this time. Similarly, in mainland SADC, excluding Angola and DRC, the total cost of border delays has been estimated at some US$ 48 – 60 million annually. Furthermore, in most countries, transport services and related matters (including customs clearances, insurance, security, licensing, safety and overload control) are heavily regulated by fragmented and generally weak public institutions and personnel, some of few whom are prone to rent seeking and illegal practices, with no effective monitoring and control.

2.3 Response

Notable efforts are emerging in specific corridors to address these problems. The best examples where concerted practical actions are being taken or are to begin soon, include the Northern Corridor (NC-linking the Great Lakes countries and Mombasa), the Trans-Kalahari corridor (TKH-linking Walvis Bay with Botswana and South Africa) and the Maputo corridor (MC - linking Maputo with South Africa, Swaziland and Zimbabwe), Beira corridor (BC–linking Beira with Zimbabwe and Malawi), plus corridors in UEMOA (Box 4.3). The specific actions being taken include:

- Streamlining regulations, documentation and procedures such as implementation of the COMESA/SADC Customs Document (CD) along TKH and NC.
- Concluding and initiating implementation of bilateral or multilateral agreements to move towards one-stop border operations (TKH and MC).
- Training and facilitating consultations of stakeholders (including customs, transport operators, immigration,

security and clearing and forwarding agents) at specific borders and ports, with a view to facilitating implementation of agreed various regional trade facilitation instruments

Box 4.3 Facilitation of Inter-State Road Transit in UEMOA

The road infrastructure and transport program adopted by UEMOA member states in 2001 illustrates the range of measures to be considered in drawing up regional road programs:

Regulatory:

- utilization of a uniform custom declaration form in replacement of national documents;
- harmonization of regulations and related documents concerning cross-border movements of vehicles: certification, registry inspection norms etc.
- agreement on scope and frequencies of road-side checks concerning trucks and cargo by various administrative services (e.g. customs, police, security/gendarmerie, forestry) and harmonization of applicable penalties for non-compliance;
- harmonisation of road users charges.

Institutional:

- establishment of joint one-stop border posts (two pilots: Cote d'Ivoire-Burkina border and Togo-Burkina border)

Monitoring:

- regional observatories of abnormal practices on inter-state roads undertaken by a private sponsors, the West

(NC and TKH).

- Establishment of an ICT based information system for tracking and monitoring cargo and vehicles, as well as "observatories" for monitoring illegal barriers and putting pressure on governments to remove them (UEMOA, NC and TKH).
- Promoting improvement of overload control enforcement through the participation of the private sector in weighbridge management (NC, TKH and East African Community).
- Promoting and facilitating the establishing of ICDs and multi-modal transport operations (NC).
- Controlling the spread of HIV/AIDS along corridors, by implementing targeted programs, conducting awareness campaigns, and providing preventive and counselling facilities along the corridor (MC).

A very positive trend is emerging of the involvement of the private sector in public-private partnership stakeholders' forums and associations to give weight to resolving the non-physical barriers. This is notable in all the above examples of emerging corridor best practices.

2.4 Benefits

The main benefits associated with the elimination of delays will be the reduction of transport costs, enhanced predictability and elimination of frustration, all of which deter the expansion of competitive and efficient transport services that are necessary to boost economic development of the African countries.

Improving overload control and safety will lead to the reduction of loss of lives and property, as well as significantly contribute to the sustainability of infrastructure. This will, in turn, provide reassurance to development partners and the private sector to invest in the expansion of infrastructure and industry and trade.

2.5 Program

The major program component will be to support and accelerate ongoing efforts and emerging best practices in specific corridors, including the conversion to one-stop border post operations. The program will also support the replicating of these best practices to other corridors and in capacity building for private sector associations, to enable them to effectively lobby governments to make the required changes. The other related program component will be the establishment of benchmarks to be used to assess the progress being made and quantify the impact against targets, as well as pinpointing problems and specific actions that need to be taken to resolve them.

Box 4.4: Summary of Short-term programs/projects – Trade Corridors

Title	Country/ Sub-region	Cost in US$ mill.	Sponsor
Institutional			
Implementation of transit facilitation, joint (one stop) borders and observatory in the corridors: (a) Abidjan – Ouaga – Niamey; and (b) Abidjan – Accra – Lome - Lagos West Africa (c) Douala – N'djamena – Bangui corridor.	 West Africa Central Africa	20	ECOWAS, UEMOA ECCAS
Implementation of overload control along corridors: - at least 2 main corridors in each sub-region	West, Central, Southern, Eastern and North Eastern and Northern Africa corridors	5	ECOWAS, UEMOA, COMESA, SADC, EAC, IGAD, NC
Implementation of harmonized COMESA/SADC CD & regional bond guarantee scheme	Main transit corridors in East and Southern Africa	3	COMESA, SADC, EAC, IGAD, NC
Strengthening/Establishment of private sector associations and stakeholder forums	At least for 2 main transit corridors each for West, Central, Southern, Eastern and North Eastern Africa sub-regions	8	NC, SADC, EAC, COMESA, ECOWAS, UEMOA, IGAD
Implementation of one-stop border posts along NC and two other SADC corridors	Northern (Mombasa) corridor, Beira & Dar – Malawi and Zambia corridors	2	NC, SADC, COMESA
	TOTAL	38	

Typical benchmarks would include, for example, the reduction by 50% of vehicle turn around or transit times in five years up to 2007. The proposed short-term programs/projects to be pursued under the NEPAD initiative are indicated in the table below.

2.6 The Role of NEPAD

The first role of NEPAD is to support and accelerate the implementation, by member States, of the sub-regional, regional and international agreements and protocols that have been already entered into to eliminate non-physical barriers. Secondly, NEPAD will assist in mobilizing financial resources in support of implementation of the programs, through high profile *fora* and consultations with international and regional development partners and the private sector. Thirdly, NEPAD will foster and facilitate networking, sharing experience among RECs and replicating best practices. Fourthly, NEPAD will, through a peer review mechanism, set Africa-wide benchmarks for monitoring the performance of RECs and specific countries and challenge those lagging behind to move more quickly in implementing the programs.

3. BETTER AND SAFER ROADS TO BRING TOGETHER AFRICA

3.1 Objective

Better roads are central to NEPAD's broad goals of reducing transport time and costs for people and goods, enhancing Africa's competitiveness and strengthening regional integration. NEPAD objective for roads will be to accelerate the development of road infrastructure and the build up and strengthening of related maintenance capacity with particular focus on regional transport corridors.

3.2 Challenges

One of the reasons for Africa's economic marginalization is the poor performance of its trade links and inland distribution chains, which rely overwhelmingly on road transport. Missing links in highway networks, the endemic deficiency of maintenance as well as formal and informal barriers all contribute to high costs, delays and unreliability.

While the problem is serious across the board, it is particularly so for Africa's 15 landlocked countries whose distance from

the sea ranges from 220 km for Swaziland to 1735 km for Chad. This is one reason why attention is being focused more and more on Development Corridors, which, while not exclusively aimed at landlocked countries play a major role in opening up their economies.

Africa as a whole lags considerably behind Asia and Latin America in road coverage and density (Fig. 4.2), however for many African countries the maintenance of their limited road assets constitute a heavy burden given low average income and the narrow and precarious fiscal base.

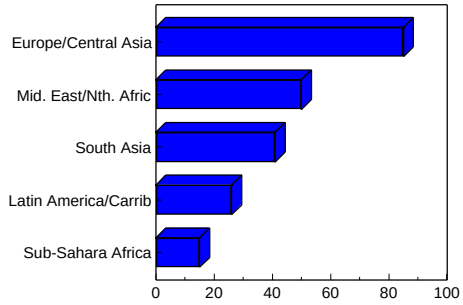
A number of challenges have to be addressed to accelerate the pace of development of Africa's road networks. The first requirement is to ensure that ***new roads as well as existing ones are maintained***. Investments in road investments cannot be undertaken in isolation but have to fit in the framework of national road programs that ensure a proper balance between maintenance, rehabilitation and upgrading and within policies and institutional arrangements that provide secure funding for maintenance. Sound road management requires control of axle-loads, which is particularly relevant for heavy trucks used for long-haul services along regional corridors.

The second challenge is one of ***planning and prioritisation of regional roads links*** to obtain maximum impact in terms of reduction of transport costs on existing trade and travel flows and, on the other hand, to open up of the economic potential of heretofore isolated regions.

The third challenge is to ***make African roads safer***. The high accident rate along Africa's roads is a source of loss and damage to trade and one of the major causes of injury and death.

The fourth challenge concerns the ***development of efficient and quality conscious engineering and contracting professions***. Road construction costs in Africa are estimated to be 20 and 30 percent higher than in Asia and Latin America. In many countries the procurement and contract administration functions are poorly organized and open to corruption. While large projects will be able to attract international engineers and contractors at a cost, medium size projects and the all important maintenance works will have to rely on local firms.

Fig. 4.2: Percent of Paved Roads



The ultimate challenge is to ensure an adequate balance between activities that help to meet each challenge. Building and rehabilitating roads without taking care of maintenance or reducing barriers to trade will be fruitless. Building regional roads that do not support trade at the expense of those that do will have a detrimental effect on a country's economy.

Response

Over the last ten years many African countries have adopted policies and carried out institutional reforms to ensure the reliable funding of road maintenance. The guiding principle of these reforms is to put road management on a fee for service model by involving users in decision concerning financing and by strengthening the accountability of road agencies. Reliable funding for maintenance is typically ensured by channelling a share of the fuel levy and of other road user charges into a road fund placed under the

oversight of a board with strong representation of users. The Road Management Initiative (RMI/SSATP) (Box 4.5) has since 1988 provided a framework for exchanges and policy analysis on these issues.

In many cases these reforms have been supported by large programs based on the network management approach and including a mix of reconstruction, rehabilitation, upgrading as well as well-defined schedules of maintenance works and capacity building measures.

This approach embodied in the so-called Road Sector Development Program (RSDP) (sometimes comprised in broad Transport Sector Programs) has allowed countries to mobilize and coordinate considerable funding from a large number of partners. In countries where it has taken root the deterioration of road networks has been halted.

The drive to put road networks on a sustainable footing and to gradually upgrade them should be consolidated and extended to all countries. This is the single most important priority for the transport sector and NEPAD will support it.

The advances in the capacity to manage existing roads should provide more confidence to countries and their partners and allow them to support the regional integration agenda by completing an agreed network of regional roads to an appropriate standard.

Some of these roads will already be included in the set of roads that support established trade flows; others will have a more regional, even political vocation. The critical issue is to develop a coherent planning framework to set priorities within agreed resource envelopes.

Several REC's (SADC, UEMOA, ECOWAS) have developed coordinated programs for road management and improvement in their sub-region, integrating investment in regional corridors within each country's road program and, defining accompanying measures concerning facilitation, road safety and axle load control. As mentioned in the overview to the transport section, the SADC approach is based on the concept of *Development Corridor* (Box 4.1), which combines improvement in transport infrastructure and services with investment in industry, commerce and agriculture and seeks private sector participation.

Box 4.5 The Road Management Initiative (RMI/SSATP)

The RMI was launched as a response to the poor performance of traditional public work agencies in road maintenance. Phase 1 which unfolded over the period 1988-91 raised awareness among policy makers and built a consensus on the need for changes. Country level implementation efforts undertaken under Phase 2 led to a coherent vision of the steps needed to "commercialise" road services and put them on a fee-for-service basis and manage them according to business principles. This requires actions in four complementary areas, known as RMI building blocks, namely:

- creating ownership and pressure for efficiency by involving road users and transport operators in the management of roads thereby gaining public support for adequate road financing;
- stabilizing road financing in particular for maintenance through earmarked share of fuel levies and user charges channelled through a road fund;
- clarifying responsibilities and accountabilities of road agencies
- strengthening the management of roads by introducing effective private sector management systems and enforcing managerial accountability.

The RMI also developed specific recommendations for improving the operations of road agencies dealing with staffing reform, contracting of maintenance, and use of labour-based methods and privatisation of plant pools.
The RMI has provided support to individual countries and organized periodic meeting of country coordinators to take stock and share their experience and draw a common analytical agenda. RMI strengthened donor coordination; it was one of the factors that lead to the *Code of Conduct* to guide road sector operations signed by most members of the African development communities. SADC on its part has prepared model legislation and guidelines for the establishment of road authorities and road funds and related oversight boards which are the institutional pillars of the road sector reform. The RMI illustrates the value of regional initiatives for advocacy and knowledge sharing to tackle critical issues in transport as well as in other sectors.

Source: T. Triche: Road Policy Reform in SSA 1991-1995, SSATP Paper 25.

In order to meet the demand for road works arising from their RSDP, several countries (e.g. Ethiopia, Tanzania, Uganda) have launched programs to strengthen their engineering and contracting industry. Such programs typically deals with reform of procurement and contract administration, firm registries, certification, training, professional associations and universities.

Awareness of the gravity of the road accident problems is widespread, however few of the road safety programs launched in African countries have been effective. The difficulties arise from the large number of agencies involved, the problem of enforcement and the many factors that lead to accidents (road conditions, design standards especially sidewalk and amenities for pedestrian and cyclist, vehicles conditions, drivers skills and attitude, etc.). Lessons have been learned and several countries have promising program underway with broad involvement of civil society organizations and private stakeholders, strong communication and advocacy function (e.g. South Africa's "arrive alive" campaign), well-defined objectives and continuous monitoring and evaluation. Road safety is a serious problem along transit corridors, which are among the most heavily travelled roads. Several REC's have included coordinated action on roads safety in their regional road programs concerning in particular vehicle inspection and registration, drivers certification, insurance, accident response capacity etc. NEPAD will support this trend and foster advocacy and exchange on effective approaches to road safety.

As trade and travel flows continue to grow, some corridors will attain levels of traffic that could justify PPP in the form of concessions or enhanced leases. This is already a reality in South Africa where 1950 km of road are tolled, of which 720 km under the State Toll Road system and 1230 km developed through BOT including in particular the Maputo Development Corridor road. The South African National Road Agency has instituted a procedure for receiving and assessing unsolicited bids for privately financed toll roads. Further north, a feasibility study for the concessioning of sections of the Mombasa-Uganda corridors is being undertaken. Other possible candidates include: Abidjan-Yamoussoukro and Douala-Yaounde. The Trans-Maghreb highway is another major road concessioning program being pursued in Africa.

3.3 Benefits

Roads are the dominant form of transport accounting for up to 80 % of cross-border freight and for most of the passenger traffic. The starting point of any reflection on the economics of roads has to focus on the imperative of maintenance. Neglect and disrepair of Africa's fragile road networks have a very high cost; one dollar "saved" in road maintenance causes roughly three dollars of additional costs to users. Without maintenance and repair road pavement break down and eventually disappear. The economic losses imposed by insufficient maintenance are estimated at about US$12 billion over the last decade.

The combination of improved maintenance with stepped up investment in upgrading and rehabilitation of priority links and facilitation could reduce transport costs to landlocked countries by as much as 50 %. Total transit time could be cut down by the same proportion considering the long delays at borders crossings. For a landlocked country like Rwanda the savings could amount to 10 to 15 % of the annual import bill, i.e. US$20 to 30 millions. More reliable and cheaper transport services between ports and their hinterland and between capital cities will enlarge regional markets and open up

opportunities for economic diversification and regional development.

The economic cost to African countries accruing from road accidents is estimated in the range of 2 % of GNP with a high foreign currency component; a recent estimate for Uganda yielded a figure of 2.3%. As road safety programs get more effective the relatively small resource involved will prevent disabilities, save lives and check related medical costs and material damage to cargo and equipment.

The mobilization of private financing will contribute to accelerate road infrastructure development along densely trafficked corridors.

3.4 Program

The first objective concerning roads will be to support the preparation and implementation of ***road sector development programs (RSDP)*** based on network management approach and appropriate institutional arrangements to ensure reliable funding of maintenance and accountability to users. This will involve a combination of the following:

- policy analysis and advice to define funding and institutional options, manage the reform process, draft legislation etc;
- preparation and evaluation of programs and related capacity requirements concerning program management etc. and;
- mobilising funds

The goal is to consolidate and extend RSDP in the maximum number of countries with the expectation that by 2006 the number of countries that are either implementing or preparing RSDP would have increased from 15 at present to at least 25. The implications in terms of levels of funding and possible source will be worked out under the medium and long-term strategy. Considering the scope of ongoing programs the order of magnitude of the funding requirements (for SSA without RSA) totals about US$ 5 billion annually of which as much as 60 %, i.e. about US$ 3 billion would have to be funded externally.

The second objective concerning roads will be to support increased investment in ***regional roads***. The sub-regional programs prepared by the REC's would constitute the framework for planning and coordinating investments in regional roads. The critical task will be to develop guiding principles and criteria for assessing the appropriate scope of regional road programs and for setting priorities. Such criteria would focus on sections of transit corridors serving landlocked countries with a regional ocean ports and would consider:

- cost reductions on existing traffic as well as the development impact through the opening up of opportunities for trade and investment;
- the road policies of the countries concerned; and
- accompanying measures related to facilitation and safety.

The program to be supported by NEPAD would involve:

- exchanges among REC's on planning approaches including the Corridor Development Initiative developed by SADC;
- preparation and review of regional road programs by the respective REC's and their member countries;
- resource mobilization; and,
- monitoring.

The third objective concerning the engineering and contracting industry will be to help countries develop strategies covering policies and institutional issues (procurement, contract administration,

registry, etc) as well as capacity building with the participation of the professional associations concerned. Work is needed to develop guidance documents and good practices concerning industry assessments/surveys, registries, program management systems etc. NEPAD will foster the emergence of regional markets for engineering services and contracting.

Road safety is primarily a national responsibility. Countries have much to gain by sharing experience and coordinating their efforts especially in areas like advocacy and communication, technical innovations, monitoring and evaluation, insurance, certification etc. The program will support joint planning and coordination at the level of the REC's to ensure that road safety is addressed in regional road programs, as it is already the case for the programs prepared by UEMOA and SADC. The Road Safety Congresses organized periodically by ECA will continue to provide valuable opportunity for stock taking at the level of the continent and will be an important component of the road safety program.

3.5 The role of NEPAD

NEPAD objectives will be twofold: (i) to support in all countries the build up of institutions and capacity to manage and develop road networks; and (ii) to accelerate the development of regional road networks.

At the political level NEPAD will stress the need to consider regional roads under the framework of sound road policies and programs and to combine them with coordinated measures in the areas of facilitation, safety and axle-load control.

While pointing the need for additional investment to close what is one of the most glaring aspects of Africa's infrastructure gap, NEPAD will stress that in order to yield sustainable reductions in transport costs and improvement in services, such investments will need to be

- undertaken under the framework of national road sector policies and programs that ensure the proper balance between upgrading, rehabilitation and maintenance with secure funding and capacity for the latter; and,

- to be accompanied with coordinated measures in the areas of facilitation, safety and axle-load control.

Road policy reform and institutional development: NEPAD will promote and support the RSDP approach and the underpinning policies and the related institutional reforms for managing the road network under commercial principles with users' oversight. NEPAD will support assessments, exchanges and policy research to pursue and further develop what has evolved as a truly homegrown initiative.

Box 4.6: Short-term Program for Roads	**Cost (US$ million)**
Institutional, policy advice, road safety (estimated).	20
Studies (estimated on the basis of regional programs)	80
Regional roads upgrading and construction (Based on projects included in REC's programs, which meet the criteria mentioned above and for which studies are available at least to feasibility level).	1,150
Total	1,250

Regional road networks: NEPAD will support the development of a set guiding principle and criteria for planning the upgrading of roads along regional corridors. NEPAD will seek agreement among countries, REC's and external support agencies that within an agreed framework, additional financial support for up to say 10 to 15 % of the road investment programs of the respective

countries would be mobilized for regional roads. This program, combining policy support with additional resources for regional roads, would build on the initiatives already in place at AfDB and EU, to earmark funds for regional projects.

NEPAD will support the development of a programmatic framework to put the planning and financing of regional roads on a more predictable footing and move away from the "vision without action" syndrome.

The review of available programs prepared by the various REC's has shown that the estimated value of the inventory of projects that *prima-facie* meet the above criteria, is well above US$ 1,2 billion. It would be reasonable to set the objective of the regional roads program outlined above at about US$ 1 billion annually for the first four years 2003-2006.

Engineering and Construction Industry: At the political level, NEPAD will call attention to the need to strengthen the local engineering and contracting professions. NEPAD would support exchanges and good practice.

At the regional level NEPAD will support the REC's and regional grouping of professional associations in their efforts to harmonize regulations and procedures concerning certification, registration, partnerships, taxation etc.

Road safety: NEPAD will ensure that regional road programs include measures concerning road safety and will support networking and exchanges and dissemination of good practices. The emphasis will be on broadened participation of civil society organizations and private stakeholders.

Urgent reconstruction: NEPAD would facilitate the mobilization of support for road maintenance /rehabilitation and institutional support for post-conflict countries: DRC, Angola, Guinea-Bissau, and Sierra Leone.

PPP opportunities: PSP transactions in road are new in Africa. NEPAD will monitor opportunities and help the countries involved to develop financing package combining public funds with private investment and including existing sections in the concession to enlarge the revenue basis.

4. COMPETITIVE AND SEAMLESS RAIL SERVICES

4.1 Objective

To implement a package of improvements of the management of the railway systems, with a view to improving the efficiency, cost-effectiveness and reliability of services and rehabilitating the weak or poor links as well as ensuring their sustained maintenance.

Box 4.7: Performance of Selected Railway Corridors (July – Dec 2000)

Route	Distance (Km)	Transit Time (Days)	Ton-Kms (Million)	Ton-Kms/ Route-Km (Thousands)	Locomotive (Km/Day)
Dares Salaam–Zambia DRC (Tazara)	1,975	18	308	156	N/A
Maputo-South Africa (Ressano Garcia)	274	12	336	1,226	530
Maputo-Zimbabwe (Limpopo)	1,246	19	9	7	523
Maputo-Swaziland (Goba)	193	3	11	60	154
Nacala-Malawi (Nacala)	803	3	40	50	N/A
Beira-Zimbabwe (Beira)	600	4	120	200	154
Dar es Salaam–Great Lakes (Central)	1,300	4	650	500	310

Source: SATCCc Annual Report for 2000-2001

4.2 Challenges

The immediate major challenge is to reverse the historical poor management of most national public railways, which has led to a huge maintenance backlog (estimated at some US$ 300 million in SADC alone) and inefficient (Box 4.7) and high cost operations, with a view to

exposing them to private sector discipline. A related challenge is to finance the rehabilitation of sections of railway infrastructure. The aim is to enable the railways to offer effective competition to the relatively more expensive road transport, with a view to lowering the total transport cost of trade, particularly for container and long distance bulk traffic. There is also the challenge of improving rail interchange and inter-rail operations across borders so that customers receive a seamless service. The improvement of cargo tracking systems is also critical since the lack of it deters potential customers, who are unwilling to send cargo into a black hole where it cannot be traced until it reappears at its destination at an unpredictable time.

4.3 Response

The main response is the restructuring of the railways by having private sector participation in their management and some financing, typically through concessioning. Several countries in west and southern Africa have concessioned their railways and many more are either in the process of or are planning to do so. In SADC, a Southern Africa Railways Association (SARA) has been established to, among other things, accelerate the integration of the rail services to provide a seamless service along the main corridors, especially which are served by more than one railway company.

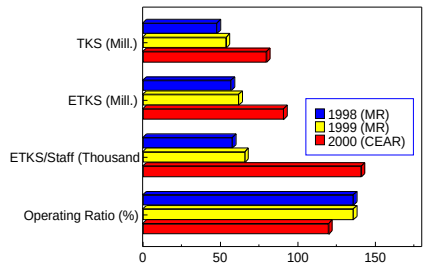
Furthermore, some countries are implementing arrangements that permit joint or shared interest in the concessioned railways between the coastal states and users in the landlocked countries. In this respect, Mozambique is implementing a policy of allocating shares, up to 16 percent, in its concessioned port and rail infrastructure to principal users or investors within the landlocked user countries. The EAC countries are also considering joint or coordinated concessioning of their formerly unified system. In West Africa, rail services between Burkina Faso and Cote d'Ivoire were concessioned to a single operator providing seamless services between the two countries. The same mechanism is used in the design for the concessioning of rail services between Senegal and Mali.

Many railways in Eastern, Southern and West Africa have installed or are installing cargo tracking and rolling stock information systems, primarily to provide customers with real-time information about the location of their cargo. A major ECOWAS interconnecting railways study for West Africa is about to commence, which will produce a railways development strategy for West Africa, comprising regulatory and institutional aspects and physical investment projects.

4.4 Benefits

The major benefit of efficient restructured railways will be the reduction in total transport cost through more effective competition between railways and roads. Efficiency improvements will also drastically reduce wagon turn around and transit times of rail cargo (Fig. 4.3). Successful restructuring and privatisation of railways, through concessioning, will open doors for a possibility of further investment to fill missing links and expand the network.

Fig. 4.3: Performance of Malawi Railways (MR) and CEAR (MR Concessionaire)



TKS = Tonne-Kms; ETKS= Equiv TKS (TKS + Pass Kms/2.25); Operating Ratio = Expenses/Revenue

Source: SATCC Annual Report, 2000/2001

4.5 Program

The principal program elements support restructuring and concessioning efforts by:

- Providing technical assistance and capacity to manage the change process including strategy development, regulatory frameworks and selection of a concessionaire.
- Taking stock of experiences with private participation in railways to learn and make necessary adjustments to mitigate bad practices and failures and create a basis for monitoring
- Where needed, mobilising funds for retrenchment. Several countries or railways (Malawi, Mozambique, Zambia and Senegal) have benefited from such funds.
- Mobilising investment funds in a PPP arrangement, where necessary, for critical infrastructure improvement.
- Assisting countries with contiguous railways to undertake a joint or coordinated concession and promoting cross-border shareholdings in privatised railways

4.6 The Role of NEPAD

The first role of NEPAD is to assist in political issues especially where a joint or coordinated concessioning is envisaged or where quick action is needed to improve the performance of the railways through private sector participation. Secondly, NEPAD will also assist in mobilizing financial resources in support of implementation of the various components of the restructuring process as explained above. Thirdly, NEPAD will foster and facilitate networking, sharing experience among RECs and replicating best practices. Fourthly, NEPAD will, through a peer review mechanism, set Africa-wide benchmarks for monitoring the performance of railway systems and corridors within RECs and specific countries, and support and facilitate accelerated reform and improvement and the railway system.

Box 4.8: Short-Term Projects/Programs for Railways

Title	Country/ Sub-region	Cost US$ (million)	Possible Sources
Institutional			
Support for concessioning of railways: - Technical assistance for strategy formulation; - regulatory capacity building; and - provision of transaction advisors.	Kenya, Uganda, Tanzania-Zambia (TAZARA) and Swaziland	10	Countries
Physical			
Rehabilitation of Railways in support of concessioning: <u>Uganda Railways</u> - Malaba – Kampala railway (part of 250 kms), including bridges - Port Bell and Jinja wagon ferry terminals rehab.; and - improving Port Bell – Kampala rail section <u>Kenya Railways</u> - Nakuru – Kisumu rail section rehabilitation (part of 250 kms), including bridges <u>Tanzania Railways</u> - Track rehabilitation, upgrading signals telecoms for Dodoma – Tabora – Mwanza section <u>Nacala Corridor Railway</u> - Rehabilitation of 77 Kms (Cuamba – Entre Lagos).	 East Africa East Africa East Africa Southern Africa	 35 25 13 68 30	Uganda, NC, EAC Kenya, NC, EAC Tanzania, EAC Mozambique, SADC
Studies			
Feasibility study for railways interconnection: - West Africa - Central Africa		 3 3	 ECOWAS ECCAS
Feasibility study of the Brazzaville – Kinshasa rail/road bridge	Central sub-region	1	ECCAS
Feasibility study of Trans-Maghreb railway system	North sub-region	3	UMA
Undertake needs assessment study for Angola and D.R. Congo for rehabilitation of the Benguela railway corridor system	Angola & D.R. Congo	5	SADC, COMESA
	TOTAL	196	

5. EFFICIENT PORTS

5.1 Objective

To improve the performance and modernize regional ports to allow them fulfil their role as Africa's gateway to worldwide logistic chains.

5.2 Challenges

Containerisation has driven the evolution of world shipping and by extension the African port industry over the last twenty-five years. Containers allow much faster and safer movement of cargo through ports and open the way for the emergence of worldwide multi-modal logistic chains. However, these developments requires large investments in specialized terminals as well as a high degree of efficiency and coordination among the whole array of agents and administrative services involved in containers handling, clearance and removal.

While some African ports have been able to realize the efficiency gains and the opportunities for multi-modal integration offered by containerisation, a good number of them are lagging. The operational performances of African ports varies greatly; container clearing time which is a good measure of overall efficiency, ranges from best scores of four days to as much as twenty five days and above (Box 4.9). It has been more difficult for publicly operated ports to keep up with the evolving requirements of the shipping industry and to obtain efficiency gains due to the familiar combination of lack of incentives, poor maintenance and weak finance.

Box 4.9: Container Handling Performance

Country	Dwelling Time (Days)	Customs Clearance Time (Days)	Physical Inspection (Percent - %)
Cameroon-Douala	22	2 - 3	80
Ghana - Tema	20	3 - 5	100
Tunisia	15	5	80
Morocco	12	1	30
Cote d'Ivoire	7	2 - 3	20
Mauritius	5	1 - 2	10
South Africa	4	1	Sample (+/- 5%)
Argentina	4 - 5	3 Hours	30

Port charges in Africa are, on average, comparatively high and in some cases, e.g. Matadi, exceptionally high. While geography and country contexts explain some differences, it is clear that high charges reflect also low productivity and inflated cost structures. They impede the competitiveness of entire sub-regions.

Many ports are facing the need for large investment to expand their container handling capacity and pursue their modernization. While the private sector should be expected to mobilize the resource needed for elements directly linked to their operations (equipment, aprons, sheds and berth space etc.), public funding may be the only alternative for other essential components of port modernization programs like rehabilitation dredging, road access and bypass etc.

5.3 Response

African ports are moving, albeit at different pace, toward the world-wide model of "landlord port" whereby the public port authority owns the land and regulates port administration and planning while private operators are responsible for all operational tasks under leases or long-term concessions.

Institutional reforms, covering the port as a whole or limited to their container terminal, have demonstrated their potential to effect rapid gains in efficiency; e.g. in Dar Es Salaam container clearing time went down from an average of 27 days to 11 days within a year after the container terminal was concessioned to a private operator. A collaborative effort undertaken in the port of Mombasa has brought container clearing time from more than 20 days to less than 7 days. A key measure was to co-locate all document vetting officers in one single room and cut down the number of separate stamps to from more than 25 to less than 10.

5.4 Benefits

In an era of ever-shorter logistic chains and tight inventory management, faster and more reliable transit through ports will contribute to Africa's competitiveness. Modernization and upgrading are critical to enable ports to offer multi-modal services and integrate their operations in the logistic chains of their customers. Improved port performance will benefit landlocked countries either by giving them better services on their traditional routes or by increasing the competitiveness of alternative routes. Competition for transit traffic, is a powerful driver for improvements and innovations in port operations and, more broadly, for overall corridor efficiency. It should be encouraged as a matter of policy by countries and REC's.

5.5 Program

NEPAD port program will focus on a continent-wide drive to align the performance of all African ports with the best among them specifically by reducing container-clearing time by half or to the four-day benchmark by year 2006. Ports operators and managers will have to provide the leadership; they will have to work closely with the whole range of agents involved in cargo handling, clearance and removal: freight forwarders, custom inspectors, security and quality standard assessors etc. The drive for efficiency will prompt governments to accelerate or initiate institutional reforms.

The drive for efficiency of ports will be supported by i) technical assistance and advice to manage the change process including: assessments, institutional and financing strategies, transaction advice etc.; ii) resource mobilization for PPP-based reform and development programs with strategic use of public funds: retrenchment, port access from land and sea, modernization of related administrative services etc. and iii) benchmarking and efficiency audits and dissemination of good practices on efficiency enhancement.

Box 4.10: Short-Term projects for Ports

	US$ (mllion)	Sponsors, countries
Physical		
Mombasa Port: expansion of the capacity of the container terminal and berth conversion.	66	KPA, Kenya, PP EAC; Northern Corridor (NC)
Nacala Port: rehabilitation in support of concessioning	28	Mozambique-Malawi: SADC; PP
Lobito Port: rehabilitation, transhipment facilities	30	Angola; Lobito-Benguela Development Corridor; PP
Abidjan Port: container terminal, dredging of Vridi Canal.	150	Cote d'Ivoire, PAA, ECOWAS, PPP
Dakar Port: rehabilitation and construction of container terminal	68	Senegal, UEMOA, ECOWAS
Djibouti Port: container handling facilities	15	Djibouti, Ethiopia, IGAD, PPP
Sub-Total	**257**	
Studies		
Mayumba Port pre-feasibility study	1.0	Gabon, ECCAS
Total	**258**	

5.6 The Role of NEPAD

At the political level NEPAD will call the attention of policy makers to the critical importance of port performance for competitiveness and regional cooperation. Specifically, NEPAD will advocate a concerted effort to reduce container clearing time by half by 2006 at the latest. NEPAD will support institutional reform and facilitate the mobilization of resource for accompanying measures concerning in particular retrenchment and accesses to the ports. NEPAD will engage port associations in the efficiency drive and will foster knowledge sharing especially on institutional options and coordination with administrative services and freight forwarders.

6. SAFE SEAS AND PORTS

6.1 Objective

To build Africa's capacity to protect its seaboard from the risks of maritime

pollution and to ensure the safety of its ports.

6.2 Challenges

Most African countries have acceded to the major conventions regulating maritime pollution (MARPOL), maritime safety (e.g. ISM Code) and work conditions at sea. However, many countries have yet to incorporate these texts into their national laws and regulations. More importantly, few countries have developed the capacity to implement these conventions concerning in particular the monitoring of ship movements, the handling of ship waste, and the response to emergencies. Oil spill preparedness is a priority especially on the coast of the Indian Ocean. About 30% of the world petroleum production of about 60 million tons is transported through waters of the Indian Ocean representing roughly 5000 tanker voyages per year.

6.3 Response

The above challenges can be best addressed through regional collaboration and pooling of resource among ports and maritime administrations along major seaboards. In fact, SADC has developed regional projects for the implementation of international maritime conventions and for handling of ship waste, an activity that is suitable for private contracting as it is already the case for some ports. The Indian Ocean Commission is currently implementing a regional oil spill contingency planning project with GEF funding and technical support from IMO. The project will organize and set up an oil spill preparedness capability at the national and regional levels.

6.4 Benefits

The development of Africa's capacity to deal with maritime pollution risks will help protect the coastal marine environment which is a source of livelihood for a substantial proportion of the population of the countries concerned and one of the main basis of their tourism industry. Compliance with safety and security conventions and availability of waste treatment facilities will ensure that Eastern and Southern African ports retain and expand their access to shipping services and their linkages with the global maritime industry.

6.5 Program

The initial actions will comprise steps planned by IMO, SADC and MOWCA (Maritime Organization of West and Central Africa) to support multi-country approaches to capacity building and environmental preparedness. These initial actions would be lead to the further coordinated capacity building initiatives and projects involving individual countries as well as joint facilities at the sub-regional level. The experience gained with the project undertaken by the Indian Ocean Commission, would be used to plan further oil spills preparedness programs in particular for Eastern and Southern seaboard as well as for Western and Central Africa.

Box 4.11: Short-Term Projects for Safe Seas and Ports

Short-term Action Plan	Country/ Sub-region	Cost in US$ (million)	Possible Sponsor
Institutional			
Advisory services for maritime affairs	Southern sub-region	1.8	SADC, IMO
Development of a regional strategy for ship waste reception facilities	Southern sub-region	1.5	SADC, IMO
Maritime safety and prevention and control of marine pollution and provision of adequate port	West and East Coast,	3.6	MOWCA, SADC, IMO
	Total	**6.9**	

6.6 The Role of NEPAD

At the political level NEPAD will draw attention to the importance of aligning national laws and regulations with international conventions and protocols concerning the prevention of maritime pollution and ships safety. NEPAD will foster collaboration among coastal groups to support coordinated approaches and, where appropriate, the development of joint or pooled capacities.

NEPAD will help to mobilize resource for program concerning maritime pollution and safety working with coastal groupings and technical organizations in particular IMO. NEPAD will foster exchanges among professional associations (e.g. MOWCA, regional port associations) in particular on collaborative approaches to the implementation of maritime conventions, handling of ship waste and environmental preparedness.

7. INLAND WATERWAYS

7.1 Objective

To establish the regulatory framework and the basic infrastructure to support the full development of commercially viable and safe transport services on inland waterways.

7.2 Challenges

Africa's inland waterways, consisting primarily of the Great Lakes and the Congo-Ubangui river system, are a source of livelihood for millions of people and traditional channels of exchanges and communication. However their contribution to regional transport has generally remained below their potential.

The challenges for governments are to develop the regulatory framework and the capacity to maintain appropriate safety and security standards and to foster the integration of lake and river shipping into multi-modal transport chains through modern trans-shipment stations linking them with roads and rail networks. The governance of navigational aid services would have to be organized so as to respond to the need of shippers, and be managed efficiently and sustained.

7.3 Response

Progress on these objectives will require coordination and joint action as African lakes and navigable rivers are shared by two or more countries, Although governments have taken steps to strengthen cooperation and to build up joint capacity in the areas of safety and pollution control, they have a long way to go and stand to benefit greatly from NEPAD support. Regional organizations (EAC, CEPGL, OMVS) and countries have undertaken actions to facilitate inland shipping and to rehabilitate and modernize lake and river ports. As traffic developed, safety emerged as a growing problem due to poor ship condition and operation, overloading and lack of navigation aids.

Institutional reforms underway throughout the transport sector are being extended to inland shipping. Shipping is becoming fully liberalized. Several countries have concessioned public ports; this is the case of Bujumbura (Burundi), Mzamba Bay (Malawi) and Mpulungu (Zambia). Ship repair facilities have also been put in private hands.

7.4 Benefits

Increased safety and security through vessel and operator certification and through preparedness will save lives, vessels and cargo by preventing accidents and improving response capacity. A modern regulatory framework will encourage investment in ships and transhipment facilities and will facilitate the integration of inland waterways in

transit corridors (insurance, cargo tracking etc.). Rehabilitated and modernized navigational aid services will reduce risk and extend navigation periods.

Box 4.12: Short-Term Action Plan for Inland Waters			
	Country Sub-region	**Cost in US$ (million)**	**Sponsor**
Institutional			
Lake Victoria: improvement of maritime safety on Status (legislation, safety, search and rescue capacity)	Tanzania, Uganda, Kenya	1.0	SADC
	Malawi, Tanzania, Mozambique	0.6	SADC, EAC
Lake Malawi-Nyassa-Niassa needs assessment on safety (similar to the one already carried out for Lake Victoria)	DRC, Tanzania, Burundi, Zambia	0.6	
Lake Tanganyika: need assessment			
Congo River: assessment and urgent rehabilitation: ports, navaids, institutional support.	DRC, CAR, Congo	6.0	ECCAS
	Total	**8.2**	

The development of navigation on the Great Lakes will support the economic integration of bordering areas and will be an enabling factor for the environmental protection of lake and rivers in particular through joint actions for the prevention and control of pollution risks (ship waste, oil spills etc.).

7.5 Program

The inland navigation program covers three distinct but related themes, namely,

- regulatory framework and related institutional capacity for safety and environmental risks;
- development and financing of navigational aid services that are responsive to users demand; and
- enabling environment for commercial services and for integration of inland water transport in multi-modal logistic chain along trade corridors. Initial actions will be focused on the Great Lakes and on the Congo-Ubangui river system.

7.6 The Role of NEPAD

At the political level NEPAD will build support for collaboration and joint action among riverine countries in particular concerning:

i) regulation dealing and capacity safety and environmental protection;
ii) policies and institutional arrangements for navigational aid services including governance and financing of O&M; and
iii) enabling framework for competitive commercial services with efficient multi-modal interface. NEPAD will also assist to mobilize resource for rehabilitation and investments and capacity building as well as facilitate PPP's for inland lake and river ports and trans-shipment facilities.

8. SAFE, SECURE AND EFFICIENT SKIES AND AIRPORTS

8.1 Objective

The objective is to lower the cost of air travel and air freight and to reduce the isolation of Africa in the air transport market, by supporting the implementation of the Yamoussoukro Decision for the liberalization and restructuring of Africa's air transport services and by improving aviation safety and airport security.

8.2 Challenges

Up to now Africa has maintained a severely restrictive regime of traffic rights to protect principally public owned and managed national airlines, which has stifled competition and sustained very high costs compared to more liberalised and competitive routes in other parts of the World particularly within and between

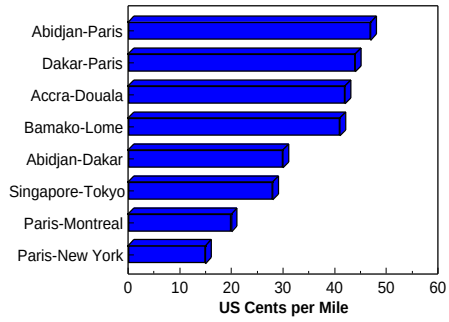
Europe and America (Fig. 4.4). The market is also fragmented and airlines are too small to be efficient with underdeveloped and expensive intra-Africa and international links. Furthermore, current air navigation and traffic control services are expensive and not up to the standards of modern technology.

8.3 Response

***Market Liberalisation and "Open Skies"*:** African countries, through the Yamoussoukro Decision of 1999, have committed to and are implementing the liberalisation of scheduled and non-schedule airlines on the continent, with planned total liberalisation for all eligible African airlines by August 2002. This process will stimulate the rapid growth of the sector, as has been the case in USA, Europe and East Asia where there was a major increase in the frequency of flights and passengers as well as a major decrease in fares after liberalization. Many countries are taking measures to strengthen and streamline their regulatory regimes to be able to manage and facilitate appropriately the anticipated growth of the market and the sector, resulting from the implementation of the Yamoussoukro Decision. The two-fold transition toward private carriers and liberalization of traffic rights is progressing albeit at varied speed. While some restructured airlines, with private sector participation and management, are developing, many small public airlines have come under pressure and have difficulties in charting their future individually in the new environment.

Safety and Security: The lack of modern equipment, facilities, skills and other ICAO-specified security measures at airports has resulted in the low classification of most of the African airports, with less than ten having the status of category one. The aftermath of 11 September has lead to higher insurance premium and added costs of security personnel. Several RECs are either considering or in the process of establishing consolidated or unified sub-regional Upper Airspace Control Centres (UACC), whose revenues will also assist in financing implementation of requisite national safety measures for the lower airspace. Furthermore, the African and Indian Ocean states have, with the assistance of ICAO, adopted a plan to modernise their terrestrial air navigation facilities with the global navigation satellite system (GNSS). Implementation of the plan is in two parts: (a) the implementation of a test bed to validate procedures and (b) the installation of the ground infrastructure necessary to cover the AFI region.

Fig 4.4: Comparative Air Fare Levels for Selected Routes



Source: AfDB/OAU/ECA Joint Secretariat: Report on Air Transport Liberalisation, Oct. 2001

ICAO has recently completed carrying out safety oversight audits for all the African countries. The audits have identified common deficiencies, which can be resolved jointly through the formulation of projects (COSCAP) including building up a pool of inspectors and preparing training and inspection manuals to guide the inspectors. Many countries have formed airport security committees and are gradually installing security measures according to ICAO recommendations and norms. These include fencing of airports, improved screening and inspection, training and deployment of requisite personnel. However, significant further

improvement in most airports is required, including establishment of appropriate legislation, contingency plans and effective organisational framework for carrying out security functions.

Efficient Airports: Operations at airports are generally inefficient with poor facilitation. However, there is already an ongoing movement in Africa towards commercialisation of airports, including the increasing participation of the private sector in airports infrastructure provision and management. The process ranges from establishment of autonomous airport companies to entering into long-term strategic partnership or concession agreements with private operators.

8.4 Benefits

The benefits of the restructuring and modernization of air transport services in Africa will consist of cheaper and more efficient services through competition and stronger regional groupings as well as an expanded market including the development of lucrative industries such as horticulture. The other important benefits will be to maintain security standards necessary to ensure direct links with the global air transport network with resulting savings in insurance costs and opportunities to participate in global alliances and, thus, capture an increased share of the global aviation industry's revenues.

The programs will contribute significantly to more frequent and reliable direct connectivity of Africa with the international community, which, in turn, provides an opportunity for increased business operations and investment in Africa and a bigger share of the global tourism market, with a significant contribution to more job and wealth creation.

8.5 Program

First, the programme will include a regional initiative to consolidate the gains from the implementation of the Yamoussoukro Decision, including support for liberalisation, concession of airports and enhancing private sector participation in airline ownership and operations, as well as upgrading of aviation infrastructure. Several RECs are pursuing or implementing such programs. Several countries in West Africa are implementing such a program, with support of the World Bank. Similar programs could be extended to other sub-regions.

Based on the experience of the West African project, the cost of the support program outlined above is estimated at about US$ 3 to 4 million per country with an additional US$1.5 million for coordination at the sub-regional level. Support to the liberalization process will also include the establishment of an appropriate regulatory and effective enforcement framework, which will ensure that customers and countries do get benefits expected from implementation of the Yamoussoukro Decision. The objective will be to deter unfair competition or commercial practices and market domination of any one or too few monopolistic carriers.

Second, support will be given for the implementation of a regional UACC project, which is estimated to cost over US$ 200 million, assuming implementation in sub-regions of the continent. According to the level of preparations and sub-regional consultations, an UACC project for the SADC and EAC regions will be implemented in the near term. However, close coordination of the UACC project implementation in the sub-regions will be instituted or strengthened in order to gain potential economies of scale.

Third, the implementation of the two identified components of AFI region GNSS project would be supported. The first component of implementation of a test bed is estimated to cost US$ 4.5 million, while installation of the ground infrastructure is estimated to cost US$ 11 million.

Fourth, support will be given to the ongoing improvement of security measures in individual countries to enable them to attain the ICAO specified international standards. At sub-regional level, the establishment of self-sustaining joint safety oversight inspection mechanisms, including organisations or units (COSCAP), will be pursued. ASECNA, UEMOA and SADC are considering commencing implementation of such projects in the near term. The cost for the program for the 20 ECOWAS countries is US$ 13.7 million.

8.6 The Role of NEPAD

The first role of NEPAD will be to assist in securing commitment and support of all the partners for accelerating the reforms, liberalisation and restructuring, which will rapidly change and improve the African aviation industry. NEPAD will also assist in resolving the political or sovereign considerations that may delay the joint implementation of some programs such as the UACC, which requires the surrendering of upper airspace for joint sub-regional control. In the case of West Africa, a specific NEPAD action will be to encourage the ASECNA members and the Banjul group (Anglophone) countries to consolidate their airspaces in order to implement one UACC for the sub-region. Second, NEPAD assist in mobilizing of resources for implementation of the programs, through high profile forums and consultations with international and regional developing partners and the private sector.

Thirdly, NEPAD will foster and facilitate networking and sharing of experience among RECs and other similar organisations. Fourthly, NEPAD will, through a peer review mechanism, monitor the performance of RECs and challenge those lagging behind to move faster in implementing the programs.

The mechanism should include the empowerment of the monitoring institutions to perform their functions effectively especially by clearly identifying and pointing out problem areas as well as fulfilling assigned regulatory functions at sub-regional and regional level. Such institutions include the Executive Agency and Monitoring Agency set up to monitor the implementation of the Yamoussoukro Decision at regional level, and the RECs Secretariats at sub-regional level.

Box 4.13: Short-Term Program for Air Transport			
Title	**Location**	**Cost in US$ (million)**	**Sponsor**
Institutional and physical			
Support for implementation of the Yamoussoukro Decision (liberalisation) and aviation restructuring: - Regional coordination and exchange of information and best practices - Regulatory capacity building - Upgrading airport security - Upgrading airport infrastructure and related facilities to category 1 standard,	All five sub-regions (North, West, Central, East and South) All countries, especially the least developed Selected two non category 1 major airports per sub-region (total 10)	8 45 50	ECOWAS, SADC, COMESA, EAC, ECCAS, IGAD, UMA and countries concerned. (As above)
Establishment of Upper Airspace Control Centres (UACC)	SADC & EAC	70	SADC, EAC
GNSS project - Implementation of test bed - Installation of ground infrastructure	Africa & Indian Ocean region	5 11	All RECs (led by ASECNA)
Establishment of joint safety oversight units (COSCAP)	West, Southern & East sub-regions Central, North-East, North	25 25	ECOWAS, ASECNA, COMESA, SADC, EAC ECCAS, COMESA, IGAD, UMA
Studies			
Establishment of Upper Airspace Control Centres (UACC) -	Study to cover other sub-regions (West, Central, North-East, North)	3	ASECNAECOWASECCAS COMESA, IGAD, UMA
Aviation infrastructure needs assessment study	Angola and D.R. Congo	2	SADC, Angola, D.R. Congo
	TOTAL	244	

9. IMPLEMENTATION SUPPORT

Objective

To facilitate and expedite the preparation, implementation and monitoring of NEPAD transport program by providing timely technical and institutional support to the REC's and the technical agencies concerned.

9.1 Challenges

NEPAD transport programs and short-term actions are meant essentially to accelerate the pace of development of transport services and infrastructure. They draw mostly on existing programs and on approaches that have already been developed and tested in Africa. NEPAD success will depend on its capacity to speed up the pace and step up the scale at which known solutions are disseminated and implemented. The challenge is primarily one of implementation. NEPAD's most important success factor in meeting this challenge will be its ability to mobilize the high level political commitment needed to accelerate reforms and carry out joint action.

A second pre-requisite for success will be to define the implementation framework for NEPAD transport programs setting clear allocations of responsibilities and coordination arrangements among REC's and technical agencies. The NEPAD implementation framework should foster the progress of the most advanced and help those that are lagging to catch up.

A third success factor for a strong implementation performance will be the provision of implementation support and technical assistance to the REC's and the technical agencies engaged in the implementation of NEPAD's transport programs. Such support will be critical to overcome the delays and the problems that have plagued the implementation of regional initiatives. The REC's as well as the technical organizations concerned are severely constrained by limited budgets

and the lack of capacity to respond to demand and opportunities. Most of them are not in the position to act timely on the many small steps involved in the realization of the larger undertakings that are their raison d'etre.

NEPAD will also need a vehicle to intensify coordination and exchanges between REC's. The capacity, experience and focus of the REC's vary greatly. They have much to learn from each other's in transport facilitation, policy reform and planning. Coordination between REC's, especially those made of contiguous groups of countries is important and will need to be facilitated.

9.2 Response

The need to support REC's and technical agencies has been addressed through capacity building programs. The evolution has been away from thematic support and direct secondment to programs that are targeted at specific outcome and objectives. Their inputs consist in assessments, surveys and analysis, workshops, communication, training etc.

The implementation of NEPAD transport programs will call on REC's and on technical agencies to take actions: to prepare programs, coordinate programs, assess situations, set benchmarks, etc. Some of these demands will be met through existing support mechanisms, but many will be additional and will require direct support to be addressed timely. In order to meet this need, NEPAD will pursue the establishment of a facility to provide technical support and facilitation services to REC's and the technical implementing agencies.

9.3 Benefits

The benefits of just in time and on-demand support for regional undertakings and change process arises from the need to develop and maintain the commitment of a large number of actors. The interventions intended under the proposed facility will cover: technical advice on emerging issues, process facilitation, consensus building and resolution of difference etc. Such support will also apply to exchanges and knowledge sharing complementing existing initiatives. The benefits will be to empower the REC's and to alleviate the risk that the high expectations raised by NEPAD in the area of regional transport integration will flounder on the limitations of the REC's.

9.4 Program

The proposed ***Transport Reform and Integration Support Facility for Africa (TRISFA***) would be modelled along the lines of the Private Participation in Infrastructure Advisory Facility (PPIAF) of the World Bank Group or the recently established EC funded capacity building project for Southern Africa (targeted specifically at the implementation of protocols on transport and trade facilitation). Both of which are structured to provide just-in-time demand responsive support to agencies spearheading reforms and changes.

TRISFA would respond to demands directly related to NEPAD programs for the transport sub-sectors emanating from the relevant REC's and technical implementation agencies designated in the implementation framework. TRISFA would fund limited, timely interventions to speed up project planning and implementation, to develop consensus, broker partnerships, and foster exchanges between REC's and technical agencies.

Each of the NEPAD sub-sectoral programs has shown the need for the type of interventions mentioned above. TRISFA would typically support: Regional coordination and joint action: exchanges among REC's and within REC's,

consensus building, brokering of agreements; Technical advice: implementation of conventions/protocols, assessments, program planning and implementation, institutional capacity building; and Knowledge sharing and networking: benchmarking, policy agenda, good practices, exchanges, study tours.

TRISFA would be set up rapidly with an initial budget of, say, US$20 million for the initial four years: FY03-06. It would be demand driven. Its management and its operational procedures should be simple and transparent. It could be set up as AfDB trust fund with a large degree of operational autonomy. Its financing would be shared between development partners and African governments.

9.5 Role of NEPAD

NEPAD will mobilize support for the establishment of an implementation support facility for NEPAD transport programs and organize consultations among partners on the modalities for its implementation. NEPAD Steering Committee would provide guidance on the overall governance arrangements and accountability for TRISFA.

CHAPTER 5

Information and Communications Technologies (ICTs)

1. INTRODUCTION

The goal of the wide deployment and exploitation of ICTs in many countries of the world is to facilitate socio-economic development. The threat posed by the digital divide to the rapid development of most LDC's and Africa in particular can be attributed to the inability of these countries to deploy, harness and exploit the developmental opportunities of ICTs to advance their socio-economic development. Rapid socio-economic development in Africa cannot take place without the necessary infrastructure: transport, energy, water and ICT. The common view is that: African countries like those in other regions of the world cannot afford not to be part of the communications and global connectivity revolution. There is now a consensus that in what is increasingly becoming a highly competitive information-driven world economy, development without a sound ICT infrastructure and modern communication services is not feasible.

2. COMPONENTS OF THE ICT INFRASTRUCTURE

The ICT infrastructure by definition cut across a variety of technologies and delivery media for supporting the transmission of voice, data and video, namely; (i) telecommunication infrastructure: fixed line, wireless, satellite-based and mobile infrastructure (ii) communication and network infrastructure including local and wide area communications and computer networks, (iii) broadcasting networks including radio and TV network infrastructure and (iv) the Internet infrastructure that incorporates elements of (i), (ii) and (iii) to form an integrated multimedia transmission, delivery and communications infrastructure at the national, regional and global level.

The ICT infrastructure also takes into account the hardware and software components of the transmission and communications infrastructure. Unlike in the case of traditional infrastructures like those of transport or energy, which focus solely on the physical infrastructure (e.g. road/rail networks, hydroelectric power plants, electricity networks), the ICT infrastructure goes beyond the physical communications network infrastructure to incorporate elements of the information infrastructure. This includes the information and database systems as well as applications platforms e.g., teleducation, telemedicine, e-commerce, e-government and governance application platforms, which are normally, implemented on the physical transmission, delivery and communications networks.

3. PROGRESS MADE BY AFRICAN COUNTRIES

African countries, in recent years have made some efforts to facilitate the ICT infrastructure deployment, rollout and exploitation process in their respective countries.

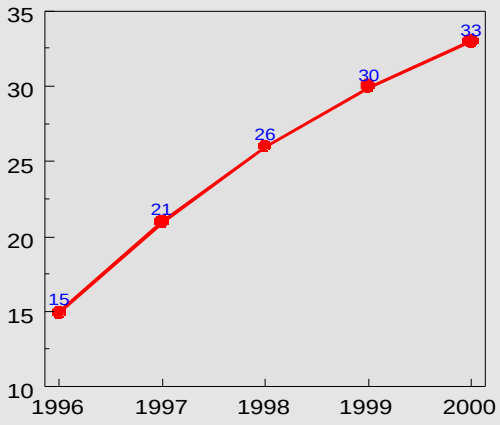
Box 5.1 African Countries with Independent Regulatory Authorities

Angola	Botswana	Burkina Faso
Burundi	Cameroon	Cape Verde
Cote d'Ivoire	C.A.R	Egypt
Eritrea	Ethiopia	Gabon
Ghana	Guinea	Guinea-Bissau
Kenya	Madagascar	Malawi
Mali	Mauritania	Mauritius
Morocco	Mozambique	Namibia
Nigeria	Reunion	South Africa
Sudan	Tanzania	Togo
Uganda	Zambia	

Source: African Telecom Indicators 2001, ITU

A number of African countries have liberalized their telecommunication sector, introduced reforms to facilitate competition in the ICT sector and set-up regulatory institutions to monitor and facilitate developments in the sector. The majority of African countries have either partially or fully liberalized their telecommunications sector (See Box 5.1).

Fig. 5.1: Cumulative Number of Regulatory Agencies in Africa



Source: ITU: African Telecommunication Indicators, 2001

It is estimated that African countries are more likely as Asian or Arab countries to have independent regulatory agencies. Starting from 1996 with only 15 African countries having independent regulatory agencies, this figure more than doubled by 2000. A number of African countries have also put in place and implemented policies on creating the necessary enabling regulatory framework and environment to facilitate the deployment, exploitation and the development of ICT infrastructure and services. A number of these countries have: completed the separation of Government regulatory and operator duties; put in place policies and mechanisms to facilitate universal service and access to basic and value added telecommunications services; created conditions for an investor friendly telecommunications environment and the development of local communications industry towards competitiveness.

In parallel with this, a number of African countries in the last five years have under African Information Society Initiative (AISI), embarked on the process of developing their national information and communications policies and plans.

The AISI serves as a framework for a radical socio-economic transformation of African countries through the deployment and the exploitation of ICTs. On the basis of work done since the adoption of the AISI, there is now an extensive body of knowledge and accumulated experience in the formulation and development of the relevant policies and plans to facilitate the process of accelerated economic development through the deployment and exploitation of ICTs in African countries.

Box 5.2: Status of Development of ICT National Policies and Plans in African Countries

Stage of the Process	Countries
Countries in the process of developing their national policies and plans	Algeria, Angola, Burundi, Cameroon, Central Africa Republic, Chad, Comoros, Congo, Cote d'Ivoire, Djibouti, D.R Congo, Equatorial Guinea, Eritrea, Guinea, Guinea Bissau, Lesotho, Liberia, Libya, Madagascar, Niger, Reunion, S. Tome & Principe, Sierra Leone, Seychelles, Somalia, Swaziland, Tanzania, Togo, Zambia, Zimbabwe
Countries who have partially completed the policy and plan development process and are implementing specific initiatives and sectoral projects	Botswana, Ethiopia, Kenya, Gabon, Ghana, Nigeria, Cape Verde, Mali, Mauritania, Malawi, Namibia, Sudan, Seychelles, Uganda
Countries who have completed their policy and plan development process and have embarked on the implementation process	Burkina Faso, Gambia, Egypt, Morocco, Mozambique, Senegal, Mauritius, Rwanda, South Africa, Tunisia

In addition to the AISI, other initiatives like the UN-ICT Task Force launched by the UN Secretary General and the Digital Opportunities Task Force (DOT Force), and others are contributing to the development of national policies, plans and initiatives directed at ICT deployment and exploitation to facilitate the socio-economic development process in African

countries. On the whole, in the areas of developing policies and plans to support ICT infrastructure development, deployment, roll-out and exploitation, African countries can be divided into three broad categories: (i) those who are either yet to start the process or are in the process of developing their national policies and plans (ii) those who have partially completed their policy and plan development process and are in some cases implementing specific initiatives or sectoral projects and (iii) those who have completed their policy and plan development process and have embarked on the implementation process.

Irrespective of the progress made to date by most African countries to create the necessary environment for ICT development, Africa stills lag behind other regions of the world in the deployment and exploitation of ICTs.

4. CURRENT STATUS OF ICTS IN AFRICA

The overview of the ICT status in Africa is carried out at two levels namely: (i) a comparative overview of the performance of Africa as a whole in comparison to other regions of the world and (ii) the ICT status within the different regions of Africa (inter-regional comparison).

Comparison of ICT status in Africa with Other Regions of the World

Despite evidence of the important role that ICTs can play in facilitating rapid socio-economic development, and the progress made by African countries to facilitate the deployment, roll-out and exploitation of ICTs, Africa still remains the continent with the least capability in ICTs and least served by telecommunication and other communications facilities. Poor ICT infrastructure, combined with weak and disparate policy and regulatory frameworks and limited human resources, has led to inadequate access to affordable telephones, broadcasting services, computers and the Internet in a number of African countries.

Africa's performance in terms of key ICT indicators is poor in comparison with other regions of the world. Africa has the lowest telephone subscriber base, teledensity, and tele-accessibility (number public phones and the installed-base of residential

Box 5.3: Comparison of Key ICT Infrastructure Indicators

	Africa	Americas	Asia	Europe	Oceania
Basic Data					
Population (millions)	812	844	3,677	800	31
Tel. Subscribers (per 100 inhabitants)	5.54	61.20	19.74	84.28	84.99
Teledensity (Tel. Lines per 100 inhabitants)	2.62	35.14	10.68	40.54	40.04
Telephone Demand					
Total Demand (millions)	23.04	288.76	192.23	321.20	12.22
Waiting time (years)	2.4	0.3	0.9	1.2	-
Teleaccessibility (2000)					
Residential Main lines (% of total main lines)	62	64	61	72	71
Public Telephones (per 1000 inhabitants)	0.49	5.05	2.48	2.32	2.90
Telephone Tariffs (US$)					
3 minutes local call	0.08	0.07	0.04	0.10	0.07
Average Connection Charge (res. + business) (% of GDP)	19.79	0.78	5.3	0.88	0.45
Information Technology					
No. of Internet users (per 1000 inhabitants)	8.5	216.2	42.6	180.5	274.4
No. of Internet hosts (per 1000 inhabitants)	0.34	133.30	2.90	19.20	88.0
Estimated No. of PCs (per 1000 inhabitants)	9.40	258.6	21.0	175.7	383.2
Other Indicators (2000)					
Telecom Sector Investment (US$ mill.)	3,476.2	53,972.8	88,163.8	53,056.9	4,113.2

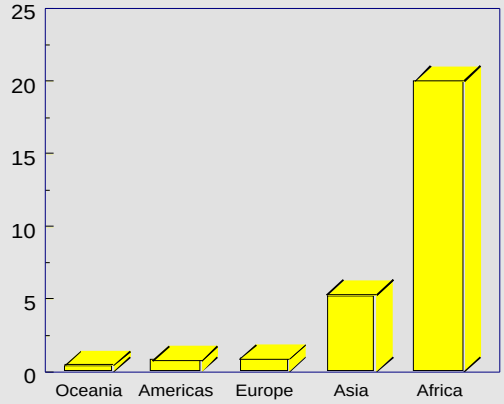
Source: *ITU World Telecommunication Development Report 2002*

telephone lines). It is the continent with a comparatively high percentage of unsatisfied demand for telephone access; long waiting list for access to telephone services; and a long waiting time, which in some countries run into years. Africa compared with other regions has relatively higher tariffs for communication services for both business and residential customers. Compared to other regions, Africa has the poorest Internet access and records by far the lowest level of computer penetration. In addition to this, investment in the telecommunication sector and the rate of deployment of value added advanced communication services like ISDN has been low in Africa compared to other regions of the world. Also Africa's performance in the area of telecommunication and communications human resources is also not encouraging.

Telephone Subscribers and Teledensity: Africa with about 13% of the world's population, accounts for only 2.3% of the World's total number of telephone subscribers (fixed-line and cellular) and about 2% of the World's total main telephone lines compared to other regions of the world. Although Africa's average teledensity (number of main telephone lines per 100 people), in recent years is above the benchmark value of 1.0 and now stands at 2.62, it is still by far very low in comparison with other regions of the world and the world average of about 17.19. Based on this comparatively low teledensity rate, goals such as universal service (a telephone line per household) and universal access (a line within easy reach of every household) are difficult to attain by a number of African countries. Although the average teledensity for Africa is above 1.0, the teledensity for most African countries and regions are below the benchmark value of 1.0 and there is a significant variation between the sub-regions of the continent as well between urban and rural areas.

Tariffs: Africa has high investment cost that translates into high service costs for users of ICT services especially residential users. The telephone connection cost in Africa averages 20% of GDP per capita compared to other regions of the world, where excluding Asia with an average connection cost of about 5% of GDP per capita, connection costs for telephone services are less than 1% of GDP per capita. On its own, this figure does not mean much, but linked to the fact that Africa has the lowest GDP per capita in the world, it amplifies the magnitude of the possible marginalisation of the continent without the institution of drastic measures.

Fig. 5.2: Average Connection Charge (% of GDP per Capita)

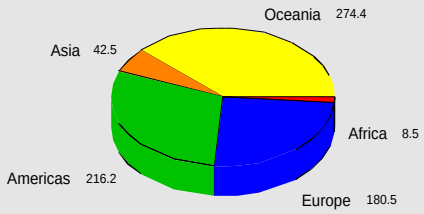


Source: ITU: World Telecom Indicators, 2002

Typically, African countries on the average pay almost 10 times more for basic services compared to high-income countries. In relation to Internet access charges, the subscription and 20 hours usage cost averages US$63 a month for African countries, compared to about US$29 for the US. This comparatively high cost of telephone and Internet services in Africa is hampering the ability of most African economies' to capitalize on ICTs as tools for enhancing livelihoods, creating new opportunities as well as creating the requisite linkages of their economies.

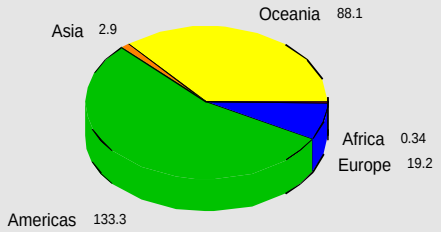
Information Technology: Regarding the broad area of the information technology infrastructure measured in terms of personal computer (PC) penetration and the number of Internet users and host, Africa's performance in comparison to other regions of the world is very poor. For example, while in Africa on the average, there are only about 9 PC's per 1000 inhabitants, there are about 21 PC's per 1000 inhabitants in Asia and 259 PCs per 1000 inhabitants in the Americas. Internet penetration in Africa in 2001 stood at less than 0.5% with a value of 0.2% in Sub-Sahara Africa.

Fig 5.3: Internet Users (per 1000 Inhabitants)



Source: ITU African Telecommunication Indicators, 2001

Fig 5.4: Internet Hosts (per 1000 Inhabitants)



Source: ITU African Telecommunication Indicators, 2001

Given that the Internet is increasingly becoming the dominant delivery platform for community-based applications like e-commerce, e-trade, tele-education, telemedicine, electronic governance etc, Africa's comparatively low Internet access and PC penetration compared to other regions of the world seriously undermines African's effort to bridge the digital gap and transform its subsistence agriculture dominated economies into information and knowledge-based economies.

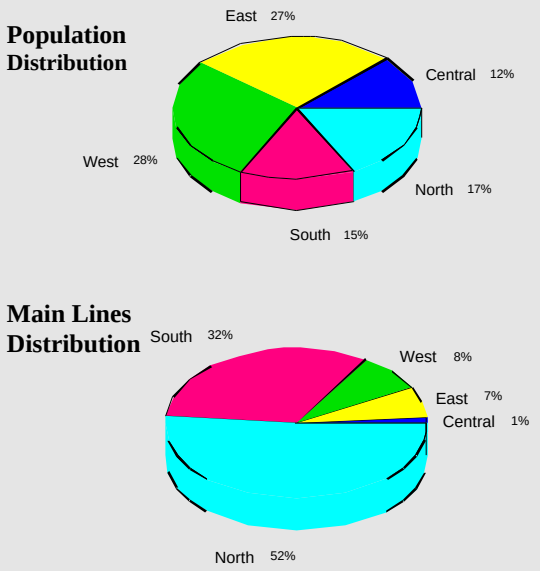
Finally, investment in the sector, a measure of the rate of deployment and exploitation of ICTs is considerably low in Africa compared to the level in other regions of the world. For example, in 2001, Africa accounted for about 1.71% of the global total investments in the sector (estimated at about US$21 billion) compared to 27% for the Americas, 44% for Asia, and 26% for Europe. The inability of African countries to attract both domestic and foreign direct investment (FDI) to facilitate their ICT infrastructure deployment and rollout initiatives is a major constraint to Africa's developmental efforts in this area.

Comparison of the Status of ICTs in the different Regions of Africa

In the previous section, a comparative analysis of the state of ICTs in Africa compared to other regions of the world was carried out based on averaged data. The state of ICTs in the different regions of Africa (North, South, East, West and Central) varies tremendously from the continental averages and therefore gives a better picture of the state of ICTs in the continent. In this section, the nature and the extent of this inter-Africa regional variations in ICT status is reviewed and analysed in terms of main telephone line distribution; teledensity; telephone tariffs; information technology and the degree of penetration of ICTs into the rural areas.

Main Telephone Line Distribution: There is a wide inter-regional disparity in terms of main telephone line distributions as illustrated in the Figure 5.5.

Fig. 5.5: Regional Population and Main Lines Distribution

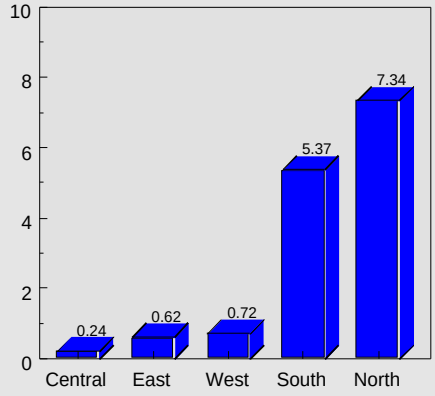


Source: ITU: African Telecommunication Indicators, 2001

The Northern region of the continent with about 17% of the total population accounts for more than half the total number of telephone lines in the entire continent, while the Western region with the highest population accounts for only 8% of the total telephone lines in the continent. Examining the distribution of main telephone lines by region further, the Northern and Southern regions of the continent with about one third of the total population of the continent account for about 85% of the total telephone lines in the continent. In other words, the Western, Eastern and Central regions of the continent where about two thirds of the peoples of Africa live have access to only 15% of the total main telephone lines on the continent. This wide disparity in the distribution of main telephone lines between the regions amplifies the extent and the depth of the connectivity problem and the limited access to basic telephone services in African countries compared to other regions of the world.

Teledensity: In parallel with the distribution of main telephone lines in the continent, the accessibility of the population to these services measured in terms of teledensity - number of main telephone lines per 100 inhabitants, gives a good measure of the accessibility to basic telephone and by extension ICT services. Within Africa, there is a huge disparity in teledensity between the five regions. While the Northern and Southern regions of the continent have relatively high teledensities, well above the continental average of 2.62, the Eastern, Central and Western regions of the continent have on average teledensities less than the benchmark teledensity of 1.0. These figures again reinforces the evidence that the North and the South have comparably better access to telecommunication and communications services compared to the other regions of the continent.

Fig. 5.6: African Regional Teledensities

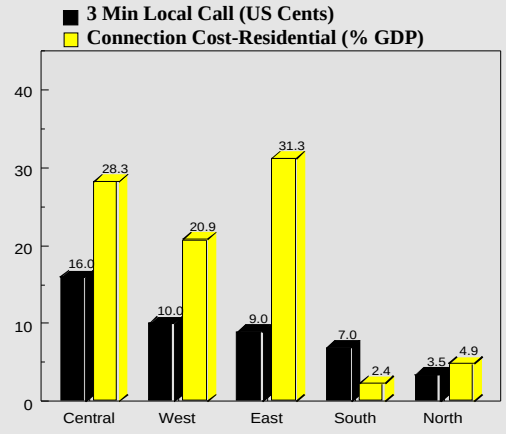


Source: ITU: African Telecommunication Indicators, 2001

Telephone Tariffs: The cost of a 3-minute local call varies tremendously between the different regions of the continent. For example, while a 3-minute local call on average costs only about 3.5 cents in Northern region of the continent, the same call in the Central region on average costs 16 cents, more than four times more expensive. Overall, on the average, it is twice more expensive for a three minute local call in the Eastern Region and three times more expensive in the Western

region compared to the Northern region of the continent.

Fig. 5.7: Average Regional Cost of Telephone Services



Source: ITU: African Telecommunication Indicators, 2001

Regarding residential connection charge as a percentage of GDP per capita, while the Northern and Southern regions have average figures below 5%, in the other regions of the continent, the average residential connection cost for basic telephone services is in excess of 20% of GDP per capita. As seen earlier, the Eastern, Western and Central regions where about two-thirds of the peoples of Africa live and also the regions with the lowest GDP per capita figures, have the most expensive telephone services.

Information Technology (IT): Africa as a whole has the lowest Internet penetration access and PC penetration compared to other regions of the world. As seen earlier, the averaged data for the continent tends to eclipse the true picture in the regions of the continent.

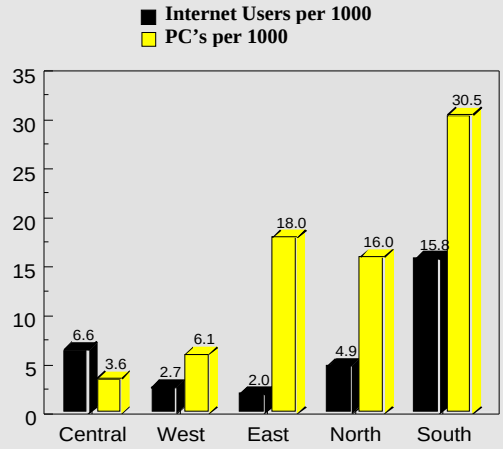
On the whole, excluding the countries of the Southern region where the number of Internet users per 1,000 of the population on the average exceeds 10, the data for the other regions of the continent shows that for every 1,000 of the population less than 10 people readily use the Internet. The reasons for this may be linked to a variety of factors including availability, affordability and relevance.

With respect to the penetration of personal computers measured in terms of the number of PCs per 1,000 inhabitants, average regional figures although more encouraging are still very low compared to other regions of the world.

Typically, in the Southern region of the continent, on the average, 30 out of every 1000 of the population are more likely to own and use personal computers while in the other regions less than 20 out of 1000 of the population are more likely to own and use personal computers.

The inter-regional disparity with respect to IT penetration further illustrates the extent and magnitude of the digital divide that the continent faces.

Fig 5.8: Average Regional Internet/IT Penetration



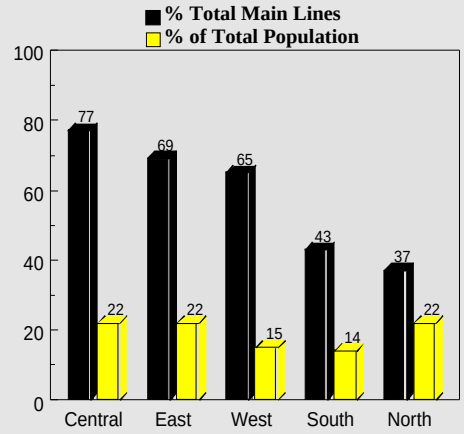
Source: ITU: African Telecommunication Indicators, 2001

Examining the number of Internet host per 1,000 inhabitants – a measure of the availability of Internet services within the different regions of the continent, countries in the Southern region on the average have about 98 hosts per 1,000 inhabitants compared to the other regions of the continent where on the average, the number of Internet hosts per 1,000 inhabitants is below 4. The implications and impact of this to the wider

development of the economies of African countries is enormous and thus calls for a concerted effort to address these imbalances.

Rural versus Urban Disparity: Apart from the inter-Africa regional disparities in the overall development and penetration of basic telephony and IT services, another area of major disparity within the continent is the level of penetration of these services in the rural areas. For example, taking the case of access to basic telephone services, the largest cities and towns which account for about 12%-22% of the total population, have access to more than 75% of the total main telephone lines in most of the regions of the continent.

Fig 5.9: Largest Cities Share of Population and Main Telephone Lines



Source: ITU: African Telecommunication Indicators, 2001

As an example, in the Central region, on average, 77% of the total main telephone lines are concentrated in the largest cities that account for about 22% of the population. Excluding the Northern and Southern regions where there is a relatively more balanced distribution of telephone lines, the distribution in other regions of the continent is skewed towards the largest cities.

Given that the population distribution of Africa is such that, on average, more than 75% of the population live in rural areas, the consequence of this is that the majority of the peoples of the continent do not have access to basic telephone services. The overall implication of this to the effort of the different African countries to enhance the development of agriculture, ensure wider education and development of indigenous private sector may not be sustainable in the long term. Furthermore, this huge disparity between the access of the urban and rural areas to basic services further compounds the magnitude of the digital divide in the continent.

Conclusions

The analyses carried out in this session in relation to the ICT status of Africa in terms of key indicators, show that Africa is faced with a major challenge to bridge the enormous ICT infrastructure, deployment roll-out and exploitation gap that exist between African countries on one hand and between Africa as a whole and the rest of the world. Efforts to bridge the digital divide as it relates to Africa, should therefore be directed at four levels namely: (i) bridging the within country divide between the rural and urban areas; (ii) bridging the within sub-region gap between countries of a given sub-region; (iii) bridging the inter-regional gap, which is pronounced as per the analysis carried out above and (iv) bridging the gap between Africa and other regions of the world.

5. CHALLENGES FOR ICT INFRASTRUCTURE DEPLOYMENT AND EXPLOITATION IN AFRICA

The poor state of Africa's ICT infrastructure and services is seriously undermining Africa's socio-economic development process. African countries on the whole face a number of ICT Infrastructure development and exploitation bottlenecks including:

Access to Capital: The development of ICTs in Africa is seriously constrained by lack of access to capital to support major sub-regional and regional ICT infrastructure rollout projects and initiatives. As established earlier, Africa's share of the total investment in the telecommunication industry is very low compared to other regions of the world.

Policies: Restrictive government policies that inhibit or make it very expensive to procure, deploy and rollout the infrastructure. For example, the imposition of heavy import duties on computer and communications equipment or the refusal to grant a license for the operation of a satellite ground station; and similar other obstacles could invariably retard the ICT infrastructure development and exploitation process in African countries.

Human Resource Capacity: The lack of human resource capacity in key technical skill areas to support the design, deployment, installation, operation, maintenance and utilization of the infrastructure networks and the systems built on these networks is a serious challenge for the development of ICTs in the continent. Numerous ICT infrastructure development projects in African countries are either seriously constrained to the extent of being delayed, postponed or poorly implemented simply because there is no enough expertise with the requisite skill to support the development and exploitation of these infrastructures.

Reforms and Regulatory Framework: Lack of harmonization of the regulatory framework across countries within a given sub-region is a major challenge for the effective development and exploitation of ICTs in the continent. Sub-regional and regional level cooperation in the area of harmonisation of regulatory frameworks will be necessary to speed up sub-regional and continental ICT infrastructure development, deployment and rollout initiatives and projects. There is a need for African governments to acknowledge the need for the creation and sustenance of the necessary enabling regulatory framework for facilitating the deployment and exploitation ICT infrastructure, services and systems.

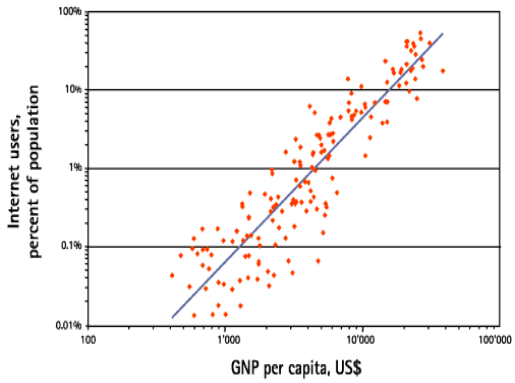
To address the above challenges, African countries will need to take action in three broad areas, namely actions directed at: (i) ICT infrastructure development and Roll-Out; (ii) facilitating the ICT infrastructure deployment process and (iii) facilitating the exploitation and utilization of the ICT infrastructure.

ICT Infrastructure Development and Rollout

Studies have shown that there is a direct link between telecommunications infrastructure and per capita growth in a given country. For example, taking the Internet and its usage as key indicators of telecommunications and communication infrastructure deployment and utilization within a given country, the ITU has shown that there is a relationship between Internet penetration and GNP per capita (see Fig. 5.10).

It is now widely accepted that telecommunications and communications infrastructure deployment and usage is a necessary precondition for sustained economic growth. Connectivity and access to these facilities presents a window of opportunity through which African countries can leapfrog their ailing economies into information driven economies, which could deliver the goods that eluded their citizens for many years.

Fig. 5.10: Internet Penetration and GDP per Capita



Source: International Telecommunications Union, 2000

The ICT Infrastructure deployment and rollout will need to be targeted at: sub-regional connectivity and inter-connectivity projects and initiatives directed at building and rolling-out the physical telecommunications and communication network including: fixed-line, wireless, satellite-based and mobile telecommunications and communication network systems infrastructure.

Facilitating the ICT Infrastructure Development Process

There is the need to support programs and initiatives aimed at facilitating the development, deployment and rollout of ICT infrastructure. The Africa Development Forum on regional integration (ADF-III, 2002) organized by the ECA, AU and AFDB in collaboration with the RECs, emphasized the need for the implementation of regional initiatives aimed at the harmonization of ICT policies and strategies to achieve economies of scale for building regional ICT infrastructure. In addition to this, the need to create and facilitate indigenous research, and increased Africa's participation in global ICT governance were also highlighted.

Initiatives to facilitate the ICT infrastructure development process in Africa includes: (i) the creation of the necessary enabling and regulatory environment and framework to facilitate the deployment, utilization and exploitation of the ICT infrastructure; (ii) the development of the required human resource capacity to facilitate the ICT infrastructure deployment roll-out and utilization; (iii) the development of sub-regional and regional capacity for the development, manufacturing, and distribution of ICT Infrastructure related equipment, systems and services required for wider infrastructure roll-out, deployment and utilization; (iv) developing and strengthening the capacity of sub-regional and regional institutions mandated to address policy, regulatory and human resource development; (v) development of the institutional and regulatory framework and structures required for supporting the deployment, utilization and development of ICT; and (vi) the development and promotion of the necessary standards, best practices and guidelines to support the deployment and exploitation of ICT infrastructure and systems.

Facilitating the Utilization and Exploitation of the ICT Infrastructure

The ultimate aim of NEPAD is to bridge the digital divide and facilitate Africa's socio-economic development in the digital age. Facilitating the deployment, exploitation and utilization of ICTs within the societies and economies of African countries is therefore crucial for the realization of the goal to initiate and sustain Africa's rapid socio-economic development. For ICTs to assist in the developmental process and make its impact felt in African countries, it is important to implement a number of national, sub-regional and regional ICT application initiatives and projects across all sectors of the economy. Therefore apart

from facilitating the development, deployment and the rollout of the physical ICT infrastructure and supporting initiatives directed at facilitating the infrastructure rollout process, there is also the need to support 'last-mile' initiatives for spreading the utilization and exploitation of ICTs within the society and the economy.

6. TYPES OF PROJECTS AND PROGRAMS PROPOSED FOR THE NEPAD SHORT TERM ACTION PLAN

The projects for the Short Term Plan fall into the three broad categories namely, ICT Infrastructure Deployment and Roll-out Projects; ICT Infrastructure Deployment Facilitation Projects; and ICT Infrastructure Exploitation and Utilization Initiatives.

ICT Infrastructure Rollout and Deployment Projects

This includes sub-regional projects and initiatives directed at building and rolling-out the physical telecommunications and communication network including: fixed-line, wireless, satellite-based and mobile telecommunications and communication network systems infrastructure.

This also encompasses major sub-regional and regional connectivity and inter-connectivity initiatives directed at building the ICT infrastructure and communications networks and systems. On the issue of connectivity and inter-connectivity within the continent; although there has been an explosion of mobile telephony in the continent which has improved connectivity, connectivity and inter-connectivity still remains a major set back in the penetration of telephony and of ICT in the continent. Internet service provision still depends solely on fixed line systems on account of cost and network set up.

The need for wide availability of telecommunications systems, networks and infrastructure to support ICT developments cannot therefore be overstated. Furthermore, African countries are virtually not interconnected; there is therefore a need to implement sub-regional and regional infrastructure deployment and roll-out interconnectivity initiatives to ensure that African countries are well interconnected to limit among other things transit charges incurred through the use of transit points outside the continent.

Box 5.4: Short-Term Plan: ICT Infrastructure Deployment and Roll-out Projects

Project	Region(s)	Sponsors
COMTEL PROJECT	COMESA	COMESA
ECOWAS Regional Interconnection Project	West	ECOWAS
The SADC Regional Infrastructure Initiative (SRII)	Southern	SADC
The RASCOM Project	Whole Continent	RASCOM
SAT-3/WASC/SAFE-Utilisation to Improve Interconnectivity	South, Central, West, East	SAT3/WASC/SAFE

ICT Infrastructure Rollout and Deployment Facilitation Projects

This includes sub-regional and regional projects directed at facilitating the deployment and exploitation of ICT infrastructure including initiatives relating to: reforms and the harmonization of the regulatory framework and environment across the sub-regions; human resource development initiatives (in areas like telecommunications and communication. network engineering, installation and maintenance and management; system integration, software development and enhancement); facilitating the effective participation of African countries in the global ICT policy and decision making fora; institutional capacity building and strengthening (building and strengthening the capacity of regional institutions mandated to support infrastructure development, roll-out and deployment activities in areas like regulation, policy, standards etc).

Box 5.5: Short-Term Plan: ICT Infrastructure Deployment Facilitation Projects		
Project	**Region(s)**	**Sponsors**
Telecommunications Equipment Manufacturing in Africa Study	Whole Continent	ITU-Africa Regional Office
ICT Policy and Regulatory Framework Harmonization at Regional Level	Whole Continent	ATU and the RECs
Strengthening of African Telecommunications and ICT Institutions	Whole Continent	Identified Institutions will own its component of the project
Programme to Enhance Africa's Participation in the Global ICT Policy and Decision Making For a	Whole Continent	ATU, the RECs and NTOs
The ICT Human Resource Capacity Development Initiative for Africa	Whole Continent	ATU/ITU-Africa Regional Office

For example, in the areas of reforms and regulatory framework: in the past decade, a number of countries in Africa have embarked on policy reforms in the ICT sector reflecting a growing belief in the potential of ICT as a key driver for economic development, poverty reduction and regional integration. Countries that have instituted meaningful reforms are reaping the benefits of improved infrastructure, accessibility and affordability of ICT services. Nonetheless the reforms have not been co-ordinated across countries and there is no collective strategy to attract investment capital. These reforms have not yet led to significant improvements in service penetration and coverage, service quality and tariffs. Facilitation projects recommended for implementation in the short-term are shown in Box 5.5

ICT Infrastructure Exploitation and Utilization Initiatives

This includes initiatives like: e-governance, e-commerce, tele-education, telemedicine, multi-purposed community telecenters and other community-based ICT deployment initiatives as well as initiatives directed at utilisation of the underlying systems of the ICT infrastructure to support key activities of the various sectors of the economy (e.g., agriculture, education, health, industrial, and service sectors) and to support service delivery within the public and private sectors.

In addition to this, a specific initiative will need to be directed at content development to take into account the issue of language, capturing of indigenous knowledge, improving Africa's presence on the Web, sharing of Africa's scientific and research output and development of content-specific applications relevant to sectors such as health, education, agriculture and culture. On the whole, a total of six continental umbrella initiatives have been identified for implementation under the Short-Term Action Plan for NEPAD (See Box 5.6).

Box 5.6: Short-Term Plan: ICT Infrastructure Exploitation and Utilisation Initiatives		
Project	**Region(s)**	**Sponsors**
The African SCAN-ICT and E-Readiness Initiative	Whole Continent	UNECA
The African Regional Telemedicine Initiative	Whole Continent	RECs
The Electronic Governance & Government Initiative for Africa	Whole Continent	RECs AfDB
The African Electronic Commerce and Trade Initiative	Whole Continent	RECs AfDB
The African Regional Tele-education Initiative	Whole Continent	RECs
The Africa Content Development Promotion Initiative.	Whole Continent	RECs

7. IMPLEMENTATION ARRANGEMENTS AND THE ROLE OF NEPAD

This section provides an outline of the broad institutional arrangements for facilitating the implementation of the NEPAD ICT Short-Term Action Plan. Three broad areas of projects have been identified for the implementation under this Plan: ICT Infrastructure Development and Roll-out Projects; ICT Infrastructure

Development and Roll-out Facilitation Projects and ICT Infrastructure Exploitation and Utilization Initiatives. A number or projects and initiatives have been identified for implementation under each of these three broad project headings. The institutional arrangement for the implementation of these projects are outlined in the Table below in terms of: project ownership entities, project implementation agencies and details relating to specific cooperating and collaborative institutional arrangements at the national, regional or the continental level required for facilitating and supporting the implementation of each of the projects. Also elaborated under each of the broad project headings are issues relating to risks and on the next steps to be taken to move the process forward.

ICT Infrastructure Deployment and Roll Out Projects

Risks: The implementation of the infrastructure deployment and roll-out initiatives identified in the short-term action plan will be crucial for speeding up the process of bridging the infrastructure gap that exist both within and between African countries. A number of these projects will address the connectivity, universal access and service as well as the inter-connectivity problem that now exists within and between the main sub-regions of the continent. Currently Africa's physical ICT infrastructure base is the weakest compared to other regions of the world. This limitation is adversely affecting the pace of Africa's socio-economic development. Africa on the whole is at risk of being further marginalized if efforts are not directed at facilitating the implementation of the infrastructure development, deployment and rollout initiatives identified in the NEPAD short-term plan. Another areas of risk which need to be taken on board, relates to risk associated with going ahead with the implementation of the identified infrastructure roll-out initiatives without putting in place and implementing initiatives aimed at creating the enabling environment for facilitating the infrastructure development and roll-out process.

The Role of NEPAD: NEPAD will as soon as possible begin the process of consultation with the identified key owners or stakeholders of each of the initiatives with the view to facilitate and speed-up their implementation. NEPAD will, (i) promote of the projects and initiatives both within and outside Africa at different fora (ii) facilitate and speed up the decision and policy making process and where necessary the signing of required protocols and agreements by the relevant African member states and other stakeholders involved in each of the projects and initiatives and (iii) facilitate where appropriate the mobilization of the required financial resources from both domestic and external sources to speed up the process of the implementation of each of the projects.

ICT Infrastructure Deployment Facilitation Projects

Risks: There is a need to support initiatives aimed at facilitating the ICT infrastructure development, deployment and rollout process in Africa. These initiatives include those aimed at the creation of the necessary enabling and regulatory environment and framework; the development of the required human resource capacity to facilitate the ICT infrastructure deployment rollout and utilization initiatives; and initiatives directed at strengthening the sub-regional and regional ICT-mandated bodies and institutions. The initiatives directed the ICT infrastructure development and roll-out projects to speed up the connectivity and inter-connectivity of African countries could risk being either delayed or abandoned if the identified facilitating

initiatives are not taken on board and implemented. A major risk factor can therefore be associated with the lack of action on these initiatives. To limit these perceived risks, NEPAD will facilitate the implementation of these initiatives.

The Role of NEPAD: NEPAD will serve as a vehicle for promoting and facilitating the implementation of the identified initiatives. Specifically, NEPAD will start the process of the promoting the initiatives at relevant fora to gain support for their implementation and generate the required momentum to speed up their implementation. NEPAD will also consult with the various sub-regional and regional stakeholders of each of the initiatives to identify the ways and the effective means by which to support and speed up the implementation of each of these initiatives within the time frame of the Short-Term Action Plan. NEPAD will facilitate the mobilization of financial resources required for effective implementation of the identified initiatives.

ICT Infrastructure Exploitation and Utilisation Initiatives

Risks*:* The wide spread deployment, exploitation and utilization of the ICTs within the societies and economies of Africa countries will be necessary for the realization of the ultimate goal of NEPAD, to bridge the digital divide and facilitate Africa's socio-economic development. It is acknowledged that African countries are at a risk of being further marginalized in the emerging new global economic order to be dominated by information and knowledge-based economies if efforts are not made to speed up the process of the deployment and exploitation of ICTs. There is therefore a high risk factor associated with not implementing the identified initiatives. NEPAD's role in facilitating the implementation of these initiatives is therefore paramount if this element of risk is to be minimized or eliminated.

The Role of NEPAD*:* NEPAD will be a major player in promoting and facilitating the implementation of the key initiatives identified, for spreading the exploitation and utilization of ICTs within the society and the economy in African countries. As a next step, NEPAD, will be promoting and seeking support for the implementation of the proposed continental umbrella initiatives at major meetings of donors, bilateral and multilateral agencies as well as at meetings of major economic blocs like the G8 and the EU. NEPAD will also play a key role in initiating a number of the proposed continental facilitating and partnership frameworks within which the various relevant national, sub-regional and regional initiatives can be coordinated, facilitated and supported to speed up their implementation and ensure their sustainability. Another key next step action to be taken by NEPAD as part of its effort to facilitate the mobilization the necessary financial resources for implementing of the projects under these initiatives will involve setting up the ***African ICT for Development Trust Fund.*** This Trust Fund to be set-up and operated by NEPAD on behalf of African countries will be aimed at attracting and mobilizing major donor funding to support the implementation of ICT for Development (*ICTfDev*) initiatives in Africa including supporting the implementation of the projects identified under the continental umbrella initiatives.

Box 5.7: Institutional Arrangements for Implementation of ICT Infrastructure Deployment and Roll-Out Projects			
Projects /Initiatives	**Ownership**	**Implementing Agencies**	**Institutional Arrangements**
COMTEL Project	COMESA Member States	COMESA	COMESA will coordinate the implementation of the project through its existing institutional arrangements
ECOWAS Regional Interconnection Project	ECOWAS Member States	ECOWAS	ECOWAS will coordinate the implementation of the project through its existing institutional arrangements
The SADC Regional Infrastructure Initiative (SRII)	SADC Member States	SADC	SADC will coordinate the implementation of the project through its existing institutional arrangements
The RASCOM Project	RASCOM	RASCOM in collaboration with national entities	RASCOM will coordinate the implementation of the project through its RASPAC initiative
SAT-3/WASC/SAFE-Utilisation to Improve Interconnectivity	The SAT-3/WASC/SAFE Grouping	RECs responsible for regional interconnectivity network projects which could link to the and complement the SAT-3/WASC /SAFE system	N.A

Box 5.8: Institutional Arrangements for Implementation of ICT Infrastructure Facilitation Projects			
Projects /Initiatives	**Ownership**	**Implementing Agencies**	**Institutional Arrangements**
Telecommunications Equipment Manufacturing in Africa Study	ITU-Africa Regional Office	ITU-Africa Regional Office in collaboration with ATU, AFDB and ECA	ITU-Africa Regional Office will be the main institutional focal point for facilitating the coordination of the project
ICT Policy and Regulatory Framework Harmonization at Regional Level	ATU and the RECs	Each REC will be responsible for the implementation it its component of the project among its member states.	The coordination of the project at each sub-regional level will be carried out by the RECs through their existing institutional arrangements. ATU will coordinate the work of the RECs at the continental level
Strengthening of African Telecommunications and ICT Institutions	Each of the identified Institutions will own its component of the project	Each of the identified Institutions will have the responsibility for implementing their component of the project	Each of the identified Institutions will coordinate the implementation of their component of the project
Programme to Enhance Africa's Participation in the Global ICT Policy and Decision Making Fora	ATU, the RECs and NTOs	The ATU in collaboration with the RECs, NTOs and UNECA will each have the responsibility for implementing relevant components of the projects.	ATU with the NTOs will collaborate on components of the initiatives that relate to the global telecommunication fora; The UNECA in collaboration with RECs will coordinate other global fora participation initiatives in particular those relating to the WTO, ICANN, ISOC, etc. The continental focal point for the project will be the ATU.
The ICT Human Resource Capacity Development Initiative for Africa	Each of the identified Institutions will own its component of the project	Each of the identified Institutions will have the responsibility for implementing their component of the project	Each of the identified Institutions will coordinate the implementing their component of the project

Box 5.9: Institutional Arrangements for Implementation of ICT Infrastructure Utilisation and Exploitation Projects			
Projects /Initiatives	**Ownership**	**Implementing Agencies**	**Institutional Arrangements**
The African SCAN-ICT and E-Readiness Initiative	UNECA	National nodes or agencies will implement national components of the SCAN-ICT and e-readiness initiative. Sub-regional collaborative efforts where necessary will be carried out by the RECs.	The continental focal point for this initiative will be UNECA. The continental coordination of the project will be carried out by UNECA working in collaboration with national implementation nodes and the REC (where appropriate)
The African Regional Telemedicine Initiative	National components of this initiative will be owned by the appropriate national implementation entities or agencies. Respective RECs will implement projects with a regional focus under the initiative.	National components of this initiative will be implemented by the appropriate national entities. Where the project has a regional focus, it will be implemented by the relevant REC.	The coordination of the implementation of each of the national components of this initiative will be done by relevant national entities. Where member states within a given REC cooperate on a project the relevant REC will serve coordinate.
The Electronic Governance & Government Initiative for Africa	National components of this initiative will be owned by the appropriate national entities	National components of this initiative will be implemented by the appropriate national entities	The coordination of the implementation of each of the national components of this initiative will be done by relevant national entities. Where member states within a given REC cooperate in a specific area, the relevant REC will coordinate.
The African Electronic Commerce and Trade Initiative	National components of this initiative will be owned by the appropriate national entities	National components of this initiative will be implemented by the appropriate national entities	The coordination of the implementation of each of the national components of this initiative will be done by relevant national entities. Where member states within a given REC cooperate in a specific area, the relevant REC will coordinate.
The African Regional Tele-education Initiative	National components of this initiative will be owned by the appropriate national entities. Ownership of projects with a regional or continental focus will rest with the relevant agency. (e.g. the Africa Virtual University Group of Institutions or Secretariat).	Implementation of national components of the initiative will be carried out by designated national entities. Implementation of Projects with a regional focus will be coordinated by the relevant project regional groupings, consortia, association or secretariat.	Coordination of national components of the project will be by the relevant national entities. Projects with regional a focus will be coordinated by the relevant regional groupings, consortia, association or secretariat set up to implement the project.
The Africa Content Development Promotion Initiative.	National components of this initiative will be owned by the appropriate national entities	National components of this initiative will be implemented by the appropriate national entities	Coordination of the implementation of each of the national components of this initiative will be by relevant national entities. Where member states within a given REC cooperate in a specific area, the relevant REC will coordinate.

CHAPTER 6: PUBLIC PRIVATE PARTNERSHIP (PPP) IN INFRASTRUCTURE DEVELOPMENT

1. ROLE OF PPPS IN DEVELOPMENT

Public-Private Partnerships (PPP's) have emerged over the last decade as one of the best ways to foster development, fuelled by insufficient investment, growing pressures on government budgets and a general concern about service provision by state enterprises and agencies. PPP's have taken place mainly in economic (physical) infrastructure, such as power, water and sanitation and telecommunications. Recently, attention has also turned to social infrastructure, such as health, education, and other services traditionally provided by the public sector. This is mainly because most of them entail large capital outlays and have long gestation periods. In many cases, however, public provision of these services has been characterised by unreliable services, high costs, and lack of coverage and poor maintenance. The desire for greater efficiency and better services, as well as the limited volume of public resources available to finance such services are now increasingly leading governments to embrace public-private partnership approach.

On a global level, Public-Private Partnerships have been growing fast. In developing countries, the total level of PPP's in infrastructure grew from US$ 16.6 billions in 1990 to over us$95 billion by 1998. However, in Africa, the value of transactions and number of countries with PPP projects, though grew over the decade, are only a fraction of what other regions were able to accomplish over the same period.

Over the 1990-98 period, Africa accounted for about US$14 billion of the total investment of US$ 496 billion made in PPP projects in developing countries, as compared to US$ 237 billion for Latin America and Caribbean region

PPP's usually take the form of a contract between a private sector entity and the government that calls for the private sponsor to deliver a desired service and assume the associated risks. The government may be currently providing that service, or it may be a service that would benefit the country and economy but is not currently being provided.

The nature of the partnership can range from fairly simple contractual arrangements to supply a specific service, to complex arrangements to design, construct operate, maintain, finance, and provide an infrastructure service. The various forms of these include: management contract, leasing, concessions, build-operate-transfer (BOT), rehabilitate-operate-transfer (ROT), build-own-operate-transfer (BOOT). The role of government's in PPP's is vital, especially in providing the necessary legal and regulatory framework that provides confidence to the private sector while safeguarding the interests of consumers.

The benefits associated with PPP's include increase in economic growth, efficiency in service delivery and service expansion, and reduction of financing burden on government budget and poverty reduction. Efficient infrastructure creates employment, develops human capital, promotes local and foreign investment and trade, fuels business productivity and expansion, and helps to raise standards of living and access to critical services. Also, efficient infrastructure services reduce various forms of losses (line losses, theft of power, poor collection leading to loss of

revenues, power outages and its implied cost to the economy, water leaks and their implications on availability of water health problems etc). Private sector participation in the provision of economic and social services avails the local economy access to private sector finance, managerial expertise, access to new markets, new technology, better project design and implementation, and more efficient use of resources.

When correctly structured, PPP's can improve access to basic services such as potable water, sanitation, electricity, solid waste collection, health care, and education. They can also play a vital role in agricultural and rural development, sectors where most of the poor in Africa are found.

PPP's in Africa

Africa faces an urgent need to invest more in infrastructure and other services and to operate them more efficiently. Africa's poor stock of infrastructure is mainly due to a collapse in investment over the past 20 years. Estimates suggest that Africa require infrastructure investment of 5-6 percent of GDP per year.

The level of PPP's in Africa, which was negligible at the beginning of the 1990s, has since then grown steadily to about $ 4.1 billion by 1998. Still that level represented only 6.1 percent of the $66.3 billion in PPP's in Latin America that year. Where PPP's have taken place in Africa, they have followed global trends, with the telecommunications and in social infrastructure, agricultural and rural development, and other services are still in the early stages of development. However, there are signs that the use of PPPs in some sectors such as power and water are substantially growing.

In 2000, six major PPP contracts were awarded in water in four countries (Cameroon, Morocco, Chad and South Africa) and more are anticipated to be concluded in the forthcoming years.

The case of water shows how PPP could help better the response to the basic needs of people. In the case of Côte d'Ivoire for example, from its original concession to supply water in Abidjan 30 years ago to very limited areas, the local company –SODECI- has increased substantially the number of its customers, not only in Abidjan but also in the rest of the country, covering today the needs of 70 % of the urban residents.

This success in providing potable water is a result of leasing arrangements in the production and distribution of water in major municipalities. It is a result of the privatisation of SODECI which is 51% owned by private Ivoirian investors, 46% owned by a strategic investor (a French water company) and 2% owned by the Government; and today its worthy to note that SODECI bonds are one of the main items traded on the Abidjan financial market.

Other examples of success stories may also be provided in the health and education sectors such as the Albert Luthuli Hospital in KwaZulu-Natal in South Africa.

2. CHALLENGES AND OPPORTUNITIES

In order for more PPP's to take place in Africa, there is the need to improve the business environment in the countries and regions of the continent. As international experience demonstrates, an enabling environment for PPP's consists of three principal elements: an attractive environment for business; an adequate legal and regulatory framework for PPP's and access to the technical skills to manage PPP programs and projects.

Presently serious constraints exist in many countries of the continent for the effective development of PPP's namely: unfavourable investor perception of country risk, Africa's limited role in global trade and investment, small market size, need for enhanced reforms, limited infrastructure, and limited financial markets. Other equally important constraints include inadequate legal and regulatory framework for PPPs, and lack of technical skills to manage PPP programmes and projects. In this context it is important to put in place PPP Technical Unit for project activities with adequate skills (legal, financial, economic, procurement and technical). An overview of countries with successful PPP programs, such as Egypt and South Africa clearly indicates the importance of PPP Technical Units in achieving the objectives of attracting private financing for public utilities while responding to the needs of potential customers.

The process of identifying PPP projects and taking them through the project life cycle is a long and complex process. Co-operation among African countries to share experiences and accumulated knowledge is crucial.

The scope for further development of PPP's in most African countries is promising provided that the constraints mentioned above are addressed. The action needed to reduce constraints to PPP's entail improving the environment for business, creating the necessary legal and regulatory framework for PPP's, and establishing PPP technical units staffed by experts with the needed skills for project and program activities.

3. NEPAD AND DEVELOPMENT OF PPP'S IN AFRICA

To encourage the wider development of PPP in Africa, NEPAD should encourage governments to undertake needed reforms to improve the business climate. This would include liberalization of investment, trade, and prices, promoting competition, creating deeper and broader financial markets, tax reforms, ensuring that commercial law protects property rights.

Furthermore, NEPAD should encourage and assist African governments to create the necessary legal and regulatory framework for PPPs at the regional level by assessing and harmonising existing laws and regulation affecting PPPs. NEPAD should also encourage and assist countries to establish Regulatory bodies in countries where they are absent as well as facilitating networking and sharing of experience among regulatory agencies and other similar organizations within regions.

The ability of countries to execute good PPP projects depends on the skills of country PPP technical units. A PPP technical unit plans and executes projects and program activities. In this regard, NEPAD should encourage and assist countries to create PPPs technical units staffed with relevant and skilled personnel (with legal, financial, economic, procurement and technical expertise) with capabilities to plan and execute PPPs programs. In addition, NEPAD should facilitate collaboration and exchange of experience in PPP's between technical units of countries as well as the dissemination of information on good practices.

CHAPTER 7

WAY FORWARD

1. INTRODUCTION

The identified NEPAD short-term programmes of action for the infrastructure sectors have four common broad areas: (i) facilitation – establishment of policy, regulatory and institutional framework to create a suitable environment for investment and efficient operations; (ii) capacity building initiatives to empower particularly the implementing institutions to meet their mandates; (iii) physical or capital investment projects; and (iv) studies to prepare new critical projects. The role of NEPAD in ensuring implementation of the programmes comprises the following four main areas of intervention:

- Mobilising political will and actions to implement reforms, including harmonising regulatory systems, and regional projects particularly those requiring pooling of resources of countries concerned and those where some sovereignty needs to be ceded such as in the establishment of regional or sub-regional upper air control centres.
- Facilitating the mobilisation of resources, particularly financing, for implementation of the programmes.
- Coordination and facilitating sharing and exchange of experiences and good practices among the principal implementation agencies including countries, RECs and specialised agencies.
- Peer review to monitor implementation and identify any areas requiring specific intervention to speed up action.

The NEPAD programme in infrastructure is not a new invention or an additional source of funds. What NEPAD brings is a new vigour to accelerate response to familiar issues and problems and implementation of tested policies and good practices. The new sense of urgency is embodied in the Africa leadership's collective commitment and determination to urgently mobilise and harness all resources available to speed up economic and social development and, thus, eradicate poverty.

The main challenge therefore is to ensure implementation of the programmes by establishing how this is going to proceed, including the allocation of responsibilities to implementing agencies and the timeframe for implementation. These are presented in the following sections.

2. NEPAD INSTITUTONAL FRAMEWORK

The first challenge concerns the institutional framework and capacity for planning and implementation.

Institutional Framework

The individual countries constitute the nuclei of all programmes and implementation actions. Central actors at this level are the governments, acting through their relevant departments or designated agencies. They are responsible for mobilising civil society and the private sector to participate and see NEPAD as relevant to their effort against poverty. These three parties –

government, civil society and private sector – are expected to internalise the NEPAD programmes in their development strategies such as the PRSPs.

The RECs as building blocks of the OAU/AU, the parent body of the NEPAD initiative, form the sub-regional level planning, coordination and monitoring the integration process. As the owner and executing agencies, the RECs will have the primary responsibility of seeking full participation of all stakeholders in the planning, development and implementation stages of their respective projects. The RECs comprise intergovernmental institutions, working with associations or other sub-regional organisations representing civil society and the private sector operating in infrastructure and provision of related services.

The RECs operate through their secretariats, commissions or technical units to coordinate and facilitate development and implementation of programmes.

The OAU/AU is the apex body at continental level. For NEPAD, the OAU/AU has designated special committees, the Steering Committee (SC) and Heads of State Implementation Committee (HSIC), to drive the process. The partnership at this level would benefit greatly from a stronger interaction of the Government leaders and officials with the African business leaders and representatives of civil society. An interim secretariat currently coordinates the NEPAD programme. This function will in future be undertaken within the permanent institutional framework of the AU when established.

NEPAD and RECs have designated or established specialised institutions to assist in the development of specific initiatives or programmes. These include the AfDB, ECA, sub-regional and national development financing institutions, the Africa Energy Commission, the various water basin organisations, RASCOM and UN technical organisations such as IMO, ICAO and ITU.

NEPAD will use the existing institutional framework to implement the short-term infrastructure programme, however, better coordination of the various implementing institutions will be instituted so as to avoid duplication and, hence, wastage of resources.

The OAU/AU has identified a need to rationalise the functions of some of the institutions to optimise the use of available resources. This is particularly so at sub-regional level, where there is a proliferation of RECs and specialised agencies. One way to deal with this problem would be the designation, by the sub-regions concerned, of major RECs to coordinate specific programmes, on the basis of relative strengths, mandates and ability to deliver the expected outputs and results. West Africa has recently done so by designating ECOWAS as its coordinator of the NEPAD programme. In the case of infrastructure, the institutional and implementation framework will be further examined in the medium-long term perspectives study.

Institutional Capacity

Many key institutions, especially their operational units, the secretariats, technical units or departments, are severely constrained in financial and human resources, particularly for taking the needed many quick actions. To begin with, the NEPAD interim secretariat, and later its successor within the AU framework, will require enhanced financial and human resources capacity for coordinating the infrastructure programme. Similarly, the RECs and other implementing agencies as well as countries also need an increase in resources.

Empowering these critical operational units will require dedicated financial support to facilitate quick responses to emerging needs. While Africa will need to harness and better manage its resources for capacity building, assistance from NEPAD and development partners will be critical. Such support would in particular aim at developing Africa's capacity to sustain its key institutions in the long term. An example of the type of support that will be needed is the proposal to establish a Transport Reform and Integration Support Facility for Africa (TRIFSA). Such an initiative could be extended to other infrastructure sub-sectors or indeed other sectors**.**

3. NEXT STEPS

The action steps envisaged are classified into six thematic areas (Table 7.1). A brief overview of main aspects of each theme is presented in the following sections.

Securing Endorsement of the Short-Term Programme

Among the major activities to be undertaken is consultation with RECs and other designated agencies, who are the originators of most of the programmes and projects included in the proposed short-term plan. This consultation will provide an initial opportunity to secure buy-in of these organisations, which is critical for successful implementation of the programme. The consultation will also assist to refine some of the programmes that could not be fully developed. In addition, the consultation will provide an opportunity to clarify the role of NEPAD as a facilitator and not a financier or the owner or sponsor of developments within the jurisdiction of a REC's initiated projects. It is proposed that the consultation be held as soon as possible but before the forthcoming OAU/AU Summit.

Mobilising RECs and Implementation Agencies

The first activity will be to determine and mobilise financial and human resources for coordinating implementation of the programme. The main target initially will be to ensure that the NEPAD interim secretariat has the capacity or is able to get assistance to kick-start and drive the implementation process.

Table 7.3 Implementation Actions and Time Schedule

Action Item	Final Date	Period in Year and Quarters																			Responsible Institution
		2002			2003				2004				2005				2005				
		2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
V. Endorsement of Short-term Programme & TORs for Long-term Study																					
1. Printing and submission to NEPAD Secretariat	31.05.02																				AfDB
2. Presentation and endorsement by the SC and HSIC	10.06.02																				Secretariat, AfDB
3. Consultation with G8	30.06.02																				SC
4. Consultation with RECs and other key implementing agencies	06.07.02																				Secretariat, AfDB
5. Consideration and endorsement by the OAU/AU Summit	10.07.02																				SC, HSIC
Mobilising RECs & Other Implementing Agencies																					
1. Preparation of sub-sectoral implementation guidelines	20.08.02																				Secretariat , AfDB
2. Disseminate short-term programme report & implementation guidelines	31.08.02																				Secretariat, AfDB
3. Establish benchmarks and targets for sub-sectoral programmes	30.11.02																				RECs, Secretariat
4. Preparation of sub-regional implementation action plans& timetable	30.11.02																				RECs
5. Discuss with RECs & compile coordinated action plan & timetable	15.12.02																				Secretariat, AfDB
Mobilising Finance																					
1. Consultation with G8 through SC & other meetings	Continuous																				SC, HSIC
2. Organise road shows to seek finance from prospective financiers	Intermittent																				SC, HSIC
3. Organise sub-region and international sectoral investment forums	Intermittent																				RECs
4. Establishing TRISFA	30.11.02																				DFIs, AfDB, Secr.
Implement the NEPAD Infrastructure Short-term Action Plan																					
1. Facilitation/sector governance: (policy, regulation, institutional reforms)	31.12.05																				Countries, RECs
2. Establishing/strengthening institutional capacity (regulatory, etc)	31.12.05																				Countries, RECs
3. Implementing physical or capital projects	Continuous																				RECS/ Agencies
4. Carrying out identified studies to prepare new projects	30.6.04																				RECs/Agencies
VI. Sector Monitoring and Peer Review Mechanism																					
1. Establish sub-sectoral & sectoral Peer review committee	30.09.02																				SC
2. Establish indicators to evaluate implementation progress & impact	30.11.02																				Secretariat, AfDB
3. Establish knowledge sharing and experience exchange mechanism	30.11.02																				Secretariat, AfDB
4. Production of half-year & yearly progress reports and indicators	Periodic																				RECs
5. Conducting sector Peer reviews and reporting to NEPAD Secr.	Periodic																				Secretariat
6. Taking needed action by SC & HSIC (arising from Peer review)	Continuous																				SC, HSIC
Long-term Perspectives Study																					
1. Procure consultants	31.12.02																				Secretariat, AfDB
2. Carry out study	30.06.04																				Consultant, AfDB
3. Secure endorsement of recommendations on long-term programme	30.09.04																				Secretariat, AfDB
4. Implement the long-term programmes	Continuous																				Countries/Agencies

After endorsement of the programme by the OAU/AU, the RECs and other designated implementing agencies will be given implementation guidelines and instructions. The main aspect of the guidelines will be a list of the programmes and projects included in the short-term plan and the allocation of responsibilities. Each REC will coordinate the elaboration of targets and key activities and time schedules for implementing programmes or projects it is involved with. For example, in case of facilitation typical targets will be completion of the policy, regulatory and institutional reform in the telecommunications sector by end of 2005, or reducing procedures related delays or transit times along trade corridors by 50% (from e.g. 16 days to 8 days) within two years.

The interim NEPAD Secretariat**, or an agency it will designate to assist in coordination,** will synthesise the submissions of the RECs in order to harmonise them. The comparative analysis of the common programmes will help to identify the planned extreme slow implementation. NEPAD will then draw the attention and engage the RECs and countries concerned on the need to speed up the process.

The process will also facilitate the determination of the need for and provide any assistance that may be required from NEPAD. Furthermore, the benchmarks, targets and timetable will be critical in facilitating the monitoring and peer review process. They will provide a basis for strengthening accountability, particularly by RECs and other coordinating institutions, which will be able to enter into result-based contract with the executives of key implementing agencies as well as easily monitor them.

Mobilising Finance.

The responsibility to mobilise finance will be shared between countries, RECs and the NEPAD apex institutions. They will set in motion a fund raising machinery, which will include intermittent road shows, round tables or investment forums to seek financial commitment by prospective financiers (bilateral, multilaterals and private sector). A critical factor in these consultations will be to listen to and address the concerns and needs of prospective financiers.

Implementing NEPAD Infrastructure Short-term Action Plan

The timing of implementation of the short-term programmes depends on the availability of funds, speed of preparing projects and capacity of the implementing institution. The proposed timing of implementation of the main components of the programme will thus be reviewed, according to availability of funds.

Establishing a Peer review and monitoring system

The first action will be to appoint a sector Peer Review Committee, which will work in conjunction with the overall NEPAD Peer review framework. The appointment of the Committee members will be based on criteria to be set for the overall framework. Nonetheless, the committee should comprise members and be in a position to act independently, without undue influence from any interested party in governments, RECs or other implementing agencies. The sector committee should be in place by end of September to assist in the determination of the indicators to be used in the monitoring process.

Secondly, among the indicators to be developed for monitoring progress and impact of implementation of the

programmes, will be those linking this progress to the overall NEPAD goal of poverty eradication and economic development. Thirdly, NEPAD will establish a forum for knowledge sharing and exchange of experiences in order to replicate successful cases elsewhere, and also avoid some of the problems encountered or mistakes made.

Long-Term Infrastructure Perspective Study

The undertaking of the long-term perspective study is planned to overlap with the implementation of the short-term programme. The study process will thus also provide an opportunity to review and refine elements of the short-term plan, including the criteria for selection of projects, benchmarks and targets.

4. RISKS

First, there is a **political risk** that some countries may not pursue or delay implementation of NEPAD endorsed programmes and action plans on key issues that will unlock any barriers to the flow of investment and financial assistance into infrastructure, from both within and outside Africa. Such issues concern in particular the establishment of good sector governance and countries not co-operating to undertake joint projects. NEPAD will mitigate this risk through intensive engagement and actions to be determined within the framework of Peer review.

Second is an **institutional risk** that the institutional framework may lead to delays in project implementation as a result of elongated process, or that the capacity constraints will not be solved. The interfacing of all institutions concerned with the planning and implementation of NEPAD will be clearly streamlined to avoid additional layers of bureaucracy. The capacity constraint will also require specific attention. At this early stage of intensive activities, the best option is to have a trust fund that will facilitate addressing the quick and critical actions needed particularly in dealing with governance or facilitation matters, which will, in turn, open doors for increased flow of finance.

Third is the **financial risk** that adequate funds will not be available to facilitate timely implementation of projects. NEPAD will mitigate this risk by addressing matters that may lead to the delay of flow of funds from both public and private sector sources. NEPAD will also institute a better Africa marketing strategy and deep engagement of the prospective financiers. Furthermore, NEPAD will mobilise as much finance as possible from internal sources.

APPENDIX 1

CONCEPT NOTE

MEDIUM-LONG TERM ACTION PLAN FOR AFRICA's INFRASTRUCTURE

Medium-Long Term Action Plan for Africa's Infrastructure
Concept Note and Study Outline

1. INTRODUCTION

This document outlines the objectives, the products and the organization of the study mandated under NEPAD on the long-term perspectives and programs for the accelerated development of infrastructure services and facilities in Africa.

The proposed structure will accommodate each of the main sectors: transport, water and sanitation, energy and ICT (Information and Communication Technologies) and, at the same time, provide the coherence and the coordination necessary to prepare synthesis and deal with crosscutting themes. The four sectoral components as well as the synthesis and the review crosscutting issues, will progress along a common schedule and will share a common database.

The outlined approach is designed to ensure adequate coordination on process as well as on substance, in the relationship with the RECs. The common schedule will allow the preparation of a synthesis as well as the review of crosscutting themes.

Finally the note indicates options for regrouping the various contracts and for overseeing the study. It provides an order of magnitude of the inputs required, their costs and the overall budget including agency costs.

2. BACKGROUND

The New Partnership for Africa's Development (NEPAD) is a pledge by African leaders, based on a common vision and a shared conviction, that they have a pressing duty to eradicate poverty and to place their countries, both individually and collectively, on a path of sustainable growth and development, while participating actively in the world economy and politics. Envisaged as a long-term vision for an African-owned and African-led development program, NEPAD aims at giving impetus to Africa's development by bridging existing gaps in priority sectors including infrastructure.

Infrastructure, defined as energy, water and sanitation, transport and, information and communication technologies (ICT), stands at the heart of NEPAD objectives of poverty reduction through growth and full participation in the world economy. The development of regional infrastructure is important because African economies are typically too small to generate the economies of scale that can be found in larger markets. Infrastructure development is a driver for regional integration and trade competitiveness. Regional collaboration is, in turn, a necessary basis for the development of infrastructure to allow economies of scale through pooling and joint facilities, and to overcome the limitation of small markets and enhance competition. The potential for promoting regional integration through the sharing of the production, management and operations of infrastructure facilities and through hubs, development corridors or poles is considerable.

In order to initiate early action and set the foundation for a sustained approach towards bridging the infrastructure gap, the NEPAD Steering Committee (Benoni, January 2002) adopted a two-pronged approach including: (i) a short term action plan to fast track the implementation of projects and programs already identified by various organizations; and (ii) a medium-long term action plan that would articulate strategies, prioritize programs and forms of partnerships that can best promote economic integration and support trade development.

The guidance for the Short-Term Action Plan was that it should focus on projects or

initiatives that are well prepared have a regional character, stand to benefit from NEPAD intervention at the political level; offer solution to regional policy issues; and, involve the private sector. The short-term action plan was prepared in light of these criteria over the period April-May 2002 for submission to the June 2002 meeting of the NEPAD Steering Committee. The short-term action plan does not contain all the projects proposed by the RECs, nor does it achieve regional balance. It is to be considered as the first stage of a rolling action plan that will be periodically updated.

The preparation of the Short-Term Action Plan has shown the need for a programmatic framework to set objectives against benchmarks and define institutional strategies and policies. Many of the interventions retained under the short-term action plan are in fact elements of broader programs and comprise a combination of policy measures, investment and capacity building.

The preparation has also showed the potential value of exchanges between the RECs to foster the dissemination of good practices and innovations. The Medium-Long Term Action Plan (MLTAP) would complement and supplement efforts undertaken within the Short-Term Action Plan.

3. INFRASTRUCTURE DEVELOPMENT IN THE CONTEXT OF NEPAD

Objectives

Bridging the infrastructure gap has been identified as one of the main priorities of NEPAD. NEPAD recognizes that the structural gap in infrastructure constitutes a serious handicap to economic growth and poverty reduction. NEPAD infrastructure program also acknowledges that if infrastructure is to improve in Africa, private sector financing domestic and external will be required to complement public resources and external aid.

NEPAD broad objectives for infrastructure development are: to improve access to and affordability and reliability of infrastructure services for both firms and households; to enhance regional co-operation and trade through the development of inter-connected infrastructure and harmonized transit procedures; to increase the size of African markets through regional integration; to increase financial investments in infrastructure by lowering risks facing private investors, especially in the area of policy and regulatory frameworks; and to build adequate knowledge and skills in technology and engineering with a view to installing, operating and maintaining "hard" infrastructure networks in Africa.

NEPAD infrastructure programs will be guided by the International Development Goals, in particular reducing the proportion of people living in extreme poverty by half between 1990 and 2015. Sectoral components will take into account vision statements specific to their sector; e.g. Africa Water Vision 2025.

Regional Focus

The individual countries constitute the nuclei of all programs and implementation actions. NEPAD objectives of improved access, quality and affordability for infrastructure services, will be internalised in the development programs of individual countries, in particular in their PRSP (Poverty Reduction Strategy).

In the case of actions that are essentially country-based, e.g. rural roads, water supply and power services, etc. NEPAD’s role will be to promote knowledge sharing and the dissemination of good practices. NEPAD will foster benchmarking and the

definition of targets in line with medium and long-term goals (e.g. service coverage for access to safe water supply and annual increase in connections). NEPAD will support related regional capacity building initiatives.

NEPAD projects will focus specifically on areas for which regional cooperation and joint action are critical. This concerns: a) actions that are the responsibility of a specific country (like maintaining roads serving regional transport corridors or providing efficient transit through ports, or protecting a trans-boundary river from pollution); b) actions that depend on coordinated interventions by a group of countries (e.g. air transport liberalization), and c) actions that are the responsibility of regional entities established jointly by a group of countries (e.g. upper space control centers)

The typology outlined above will help to define the focus of the programs to be reviewed and developed under the MLTAP.

Crosscutting Themes

Underpinning NEPAD's infrastructure program is the recognition that the infrastructure gap is as much a policy and capacity gap as it is an investment gap. While the situation of infrastructure services is still typically one of lagging coverage, poor maintenance and weak finance, many countries have been able to upgrade and expand their infrastructure assets and to improve services through a combination of policy changes, institutional reforms and investments. Over the last decade, the movement of reform to decentralize and to move away from the public sector monopoly model has gained momentum in all infrastructure sectors.

NEPAD role will be to help develop a common vision for infrastructure policies and accelerate the pace of reforms needed to create the enabling environment for stepping up the flow of the investments. As governments withdraw from direct provision of services, they face the challenge of establishing policies and regulatory frameworks that foster level-playing competition and support the emergence of regional markets while ensuring that the end users obtain the expected benefits. Issues of ***sector governance and regulation*** are of concern to all infrastructure sectors and the study will address them as a crosscutting theme.

All infrastructure sectors face a ***financing gap.*** The investments necessary to update and expand capacity are considerably above current level of expenditure. The MLTAP for each sector will have to develop a financing strategy considering users charges and tariffs, the leveraging of limited public funds and the funding of programs targeted toward services for the poor. In addition, the study will address financing as a crosscutting theme in order to distill common principles and formulate recommendations to facilitate the mobilization of private financing.

Measures to overcome the ***capacity gap*** will be part of each sector plans. In addition the study will address capacity building as a crosscutting themes focusing on good practices and policies concerning: (i) knowledge sharing and networking; (ii) regional training centers; and, (iii) increased involvement universities and research organizations in policy work. Only a few sectors have successful membership organizations, e.g. water, ports. As a rule sector professionals have limited access to knowledge networks. The experience gained by African countries over the last ten years provides a wealth of lessons and good practices. The capacity to create and disseminate knowledge faster and more broadly will be a powerful catalyst for NEPAD goals in infrastructure.

4. THE MEDIUM-LONG TERM ACTION PLAN

OBJECTIVES

The goal of the Medium-Long Term Action Plan (MLTAP) is the steady and sustained development of infrastructure and related services on the continent. The broad objective of the MLTAP process will be to foster the adoption of a coherent set of concepts and indicators as well as a common planning framework across the sub-regions. The MLTAP process will allow cross-fertilization between RECs and across sectors. The MLTAP will deal with three inter-related areas of: (i) policies, regulation and institutional structures; (ii) investment requirements and financing; and, (iii) capacity utilization and development as well as knowledge sharing and networking.

The specific objectives of the MLTAP will be:

At the sub-regional level:

a) To develop for each sub-regions and sector or sub-sectors, ***medium to long term plans to*** attain specific targets concerning: coverage, quality and capacity. The targets will assume reasonable progress in alleviating policy and capacity constraints based on good practices emerging from the experience of African countries. The plans will also take into account the macro-economic and fiscal frameworks of each country. The plans/roadmaps will provide an estimate of aggregate levels of investment and test financing strategies with varying level of internal cash generation, private financing and public funding (domestic and aid). The strategies will also deal with the enabling factors to mobilize resource and attract investors.

b) To develop for each sub-region and each sector, ***medium-term programs*** to implement the sector plans/roadmaps with measures in the three areas of sector policies and institutional structure, investments and sector financing, and capacity building. These programs will be developed at the level of sub-regions or the relevant regional groupings for pooled capacity and joint actions. The medium-term programs will pay particular attention to the implementation of the Short-Term Action Plan and related follow-up measures.

The medium-term programs will be developed jointly with the relevant RECs. They will be based on existing programs, which will be reviewed and supplemented as needed in light of the sector strategy and targets. They will include the identification of relevant sectoral programs in the countries concerned (e.g. road sector development programs) as well as large projects (e.g. hydropower generation) and sub-regional capacity building initiatives. The medium term programs will also review institutional arrangements for follow-up and recommend related measures concerning the capacity of the RECs and the governance of the sub-regional programs.

At the regional Africa-wide level

a) To prepare ***Africa-wide sectoral overviews*** for each sector on the basis of the sub-regional programs. The sectoral overviews will aggregate sub-regional long-term plans and programs and provide a synthesis of common directions and good practices and innovations especially concerning financing and institutional approaches. The sectoral overviews will also review continent-wide sectoral issues

related in particular to trade facilitation and international conventions and protocols.

b) To prepare issues/options papers on three ***cut-crossing themes***: governance and regulation, financing and pricing, capacity building and knowledge networks. The underlying rationale for these papers is outlined above. Their focus and coverage will be detailed in separate TORs.

   The sectoral overviews will serve as a base to prepare a synthesis, the ***Africa Infrastructure Plan,*** aggregating the outcome of the sectoral overviews and the key findings of the crosscutting issues/options papers. The purpose of the Africa-wide synthesis is: (i) to indicate stretched but achievable targets for service access, affordability/cost and quality; (ii) to map out what it will take to get there in terms of policies, investment and capacity. The Africa-wide synthesis will also review support measures and initiatives to speed-up implementation and facilitate coordination among NEPAD partners.

c) **To establish an** *Africa Infrastructure Data Base* **and develop a plan for its upkeep.**

Time Frame and Scope

The proposed time frames would be 2015 for medium term targets and programs and 2025 for the long-term targets and plans. The plans and programs that will be the object of the MLTAP will be focused on infrastructure services and assets that are regional in their nature or in their impact. This implies (i) infrastructure services and assets that depend on regional collaboration and joint action; and, (ii) infrastructure services and assets needed to promote economic integration and support trade competitiveness. The Short-Term Action plan as well as the mandates of the various RECs and the scope of their programs will also guide the definition of the scope of the study.

Guiding principles

The study has been designed to reconcile two basic requirements:

a) Coherence between RECs and between sectors to allow an overview and foster cross-fertilization. This will be achieved by using common frameworks and methodologies (medium-long term targets, strategies, medium term programs), and through the crosscutting thematic papers. One of the outcomes of the study will be the development of evaluation frameworks for prioritizing regional projects.

b) Customization of products to best serve the needs of sub-regional audiences, i.e. the RECs and sectoral agencies. The sub-regional products will be adjusted to the specific needs of the RECs to fit in their planning cycle. In some cases, the study will provide them with the opportunity to develop a programming framework for their activities. In other cases, e.g. SADC and ECOWAS, the study will consist of a guided review and will focus on areas in need of attention (e.g. criteria for regional investment, knowledge management).

The study will foster exchanges of experience and good practice between RECs and across sectors. The study will interact first with the RECs, which have the longest experience; i.e. East and Southern Africa (ESA) and ECOWAS.

Organization and Methodology

The study will progress through the following phases:

Phase 1: Planning and development of assessment frameworks (Month 1 to 3).

a) Detailed planning of work program and preliminary assessment of RECs and technical partners;
b) Compilation of databases covering status and trends:
   - common elements: population, urbanization (cities, small towns, rural). Characteristics of the economy, GDP, trade, public finance, investment, PRSP's (status, coverage)
   - sectoral: coverage, density, stock, access, quality, investment, policies, available performance indicators, benchmarking indicators for NEPAD Short-term Action Plan

c) Development of assessment frameworks and benchmarking indicators: i) for RECs programs, policy, capacity, good practices; ii) for regional technical organizations; iii) for sectors in countries: covering key elements of policies and institutional structures based on relevant policy review and NEPAD the short-term action plan, investment/financing, benchmarking, coverage/cost/quality of services; and iv) for corridors or shared systems: benchmarking, coverage/cost/quality of services, facilitation programs, and institutional arrangements.

d) Initial definition of long and medium term targets.

e) First drafts of issues/options papers on crosscutting themes: governance and regulation, financing and pricing, capacity building and knowledge networking. This initial draft will identify key issues to be reviewed at the sub-regional level and will also indicate information gaps and case studies to be prepared during Phase 2.
f) Partnership agreements with regional programs (WUP, AWRMF, CAPNET, SSATP, professional associations, ISTED, SITRASS etc.).

Products of Phase 1.

Phase 1 would lead to the preparation of the Inception Report with sectoral appendix (month 3). The Inception report will be reviewed at a workshop with the RECs and regional technical organizations. The outcome of the workshop will be: (i) agreed assessment frameworks and indicators; (ii) agreed schedule of visits for the five sub-regions; and, (iii) customization of the work programs to be carried with the respective RECs and technical organizations concerned.

Phase 2. Preparation of sub-regional plans and programs (month 4 to 13).

- Assessments of RECs and regional technical organizations
- Review of the existing regional programs of the RECs and country programs against assessment frameworks and NEPAD Short-Term Action Plan.
- Definition of performance and development targets and preparation of long-term plans/roadmap to reach them covering policy/institutional aspects, investments and capacity building. Long-term plans developed iteratively to take into account sector and country constraints.
- Development of medium term programs including actions at country and sub-regional levels.
- Preparation of medium term institutional plans for RECs: institutional mandate/oversight (private sector stakeholders), capacity building, financing.

Phase 2 would cover five sub-regions and would unfold over three quarters in line with the following schematic schedule. The last quarter will include a review of the sectoral outcome with the professional and technical organizations (Ports Associations, AFREC, UAWD, Railways etc,)

Phase 3. Synthesis and Review (Month 14 to 18)

- Preparation of Africa-wide (regional) sectoral overviews on the basis of the long-term plans/roadmaps and medium-term programs of the sub-regions.

INFRASTRUCTURE MEDIUM-LONG TERM ACTION PLAN MLTAP							
Study Phases	Sub-regions	2003				2004	
		1	2	3	4	5	6
Phase 1. Data base, assessment frameworks, planning							
Inception report							
Workshop with REC's and tech, agencies							
Phase 2. Sub-regional plans/roadmaps and medium-term programs for sub-regions by RECs and regional organization	ESA						
	ECOWAS						
	UAM-N Africa						
	Central Africa						
	North-East						
	Reg tech. organisation						
Phase 3: Synthesis and cross-cutting themes - Africa Infrastructure Plan - Africa Infrastructure Outlook - Issue/option papers on crosscutting themes							
Workshops/Conferences							
Final documents							

Products of Phase 2.

At end of Phase 2 each sub-region will hold a workshop with the relevant RECs and technical agencies with the participation of country representatives to review the draft of: a) the long-term plans and roadmaps; b) the medium term-programs (policy, investment, capacity); and, c) the medium-term institutional plans for the RECs and other regional agencies.

One representative of other neighbouring RECs would be invited to the sub-regional workshop. The work with each REC (or sub-region) would last three months at the maximum in line with the work program agreed at the launch workshop. During the fieldwork with the RECs (or sub-regional entities) the study team will assess data base capacity for future networking into the NEPAD Infrastructure Database Network.

- Preparation of Issue/Option papers on crosscutting themes, namely, sector governance and regulatory functions, pricing of financing of infrastructure for poverty reduction, and capacity building and knowledge networks for excellence and innovations in African institutions.

- Preparation of the Africa Infrastructure Plan summarizing sectoral overviews. The overall program will analyse the aggregates resulting from the sectoral overviews; assess implications concerning overall funding and policies for regional, bilateral and multilateral institutions, make recommendation concerning aid coordination and leveraging of public funds to mobilize private finance, and identify policy and institutional gaps and propose options

- Preparation of the first edition of Africa Infrastructure Outlook based on database.

- Recommendation for upkeep of the Africa Infrastructure Database.

The Issue/Option papers would be based on cases reviewed during the work with RECs- as well as consultations with learned persons and knowledge management specialists.

Phase 3 would unfold as follows: two months (**month 15 and 16**) for preparing synthesis reports, one month (**17)** for review and workshop(s) and one month (**18**) for preparing the final reports.

Implementation and Management

Teams of consultants will carry out the study. One firm will be assigned to deal with overall coordination, and crosscutting issues and the database. Other firms would deal with the various sectors: transport, water, energy and ICT. Specific TOR's will be prepared for each sector and for the overall coordination and crosscutting and synthesis tasks. The option of regrouping sectoral assignments under a common contract will be considered. The sectoral teams will be lead by senior experts with strong experience in strategy formulation and policy assessments. They will also include: i) financial/institutional specialists with experience in the relevant sector; and ii) planners/engineers as well as more specialized experts as needed. The consultant teams will not be involved in project preparation and implementation; such requirements related to the Short-Term Action Plan will be met separately.

The study would be placed under the oversight of a Steering Committee and a Coordination Unit at the AfDB. The Steering Committee will: i) oversee the procurement and the coordination among the consultants and between the consultants and the RECs; ii) ensure that quality assurance measures are in place; and iii) liaise with the NEPAD partners.

The Coordination Unit will: i) provide support to the SC and follow-up on its decisions; ii) ensure the operational liaison with the RECs; and iii) administer the consultants contracts

The quality assurance would be provided by an advisory panel that would: i) review the TORs and evaluate the consultant proposals; ii) review products at critical juncture: inception report, RECs programs and draft final report; and iii) act as resource persons for the secretariat and the SC and handle special assignments related to methodology or special issues.

Coordination with other studies

The MLTAP would have to be closely coordinated with other similar parallel efforts in particular: i) The Euro Med Transport Study covering the Maghreb and the Makrech managed by the EC; ii) The study concerning the updating of the Trans-African Highway Network funded and managed by the AfDB. The TORs would be adjusted to ensure that the NEPAD MLTAP takes their output into account.

Cost Estimates

MLTAP Components	Expert Months		Estimated Cost US$ ('000)
	Long Term	Short Term	
Overall coordination, synthesis and cross-cutting Issues and Options papers	70	25	1,400
Energy	50	10	1,150
Water and sanitation	50	10	1,000
Transport	70	20	1,350
ICT	50	10	1,100
Total	**290**	**75**	**6,000**

Study costs: The MLTAP as outlined above would require considerable expertise and travel. Its budget is estimated at about 365 staff months and a budget of US$6.0 million

Agency costs. The coordination and the management of the MLTAP study will require a well staffed Coordination Unit as

well as resource to establish and maintain partnerships and to ensure quality assurance.

The Coordination Unit will need three staff to ensure the following functions:

- Head of Coordination Unit: liaison with consultant teams, substantive oversight, quality assurance, liaisons with the SC and external partners, management of the Unit.
- Regional Coordination: liaison and coordination with sub-regions and regional technical organizations, communication, workshops.
- Project management/administration: contract administration, financial management, support to Unit Head.

The budget for the launch and management of the study would total about US$1.05 million as follows:

Agency Costs	US$ (million)
Coordination Unit; Staff Cost, Office Support, Travel	0.65
Steering Committee, Quality Assurance, Advisory Aervices	0.30
Publications	0.10
Total	**1.05**

Partnerships

One of the important steps in the further preparation of the MLTAP will be to explore and possibly conclude partnerships agreements with organizations that are engaged in policy analysis, benchmarking and knowledge networking in Africa. These would include *inter alia:* a) Transport sector: SITRASS, ISTED, SSATP; b) Water and sanitation: Africa Water Task Force, UAWS-WUP, AWRMF, WSP; c) Energy: AFREC; Financing: DBSA, PPIAF; d) ICTs Sector, ITU, ACP, ECA, etc

Next Steps

The immediate next steps will be to prepare coordinated TORs for the various sectors and regroup them by contracts and prepare detailed budget and timetables. Once the Steering Committee of NEPAD have endorsed the principle of the MLTAP the following steps will be pursued:

a) hold consultations with the RECs. The goal of these consultations will be to develop a consensus on the MLTAP and ensure ownership by the RECs. The specific objectives will be: to seek their comments and suggestions and adjust the TORs as appropriate; to gather information on existing and planned studies, databases etc; to review tentative schedule for the launch workshop (Phase 1) and the Phase 2 planning and programming exercise in each sub-region.
b) hold consultations with NEPAD partners to seek their views and ensure appropriate coordination and identify opportunities for partnerships in the various sectors and for cross-cutting themes.
c) finalise the preparation by developing a financing plan for the study; establishing the Coordination Unit; establishing the quality assurance group; finalising the TORs (to take into account other studies and partnership arrangements), and developing a detailed procurement plan and implementation program (grouping of contracts, evaluation criteria, coordination with other studies and partnerships) etc.
d) launch the pre-qualification process (expressions of interest, evaluation)
e) establish short list and invite proposals
f) evaluate proposals and select firms
g) negotiate and sign contracts
h) launch Phase 1.

APPENDIX 2
PROJECT BRIEFS AND PROFILES
ENERGYSECTOR

MEPANDA UNCUA HYDROPOWER PROJECT
PROJECT ASSESSMENT REPORT

1) **Introduction:** Mepanda Uncua (MU) hydropower project will be situated in the lower reaches of the Zambesi River about 60 km downstream from the Cahora Bassa Dam (CB) in Mozambique in Tete.

2) **Background:** In order to accelerate the development of the Zambesi River valley, the area has been established as a special fiscal and customs region with extensive exemptions from import duties and taxes for activities such as production, transport, and distribution of electricity.

   The Government also assures the investors the security and legal protection of property over goods and rights in connection with the investments made, export of foreign investors' profits and repatriation of capital upon liquidation or sale.

   The Mozambican Government Unit for Implementation of Hydroelectric Projects (UTIP) is a governmental body reporting to the Minister of Mineral Resources and Energy (MMRE). UTIP was established in 1996 to safeguard the country's interests in the Zambesi River hydropower potential and to assist in its development. Using finance from Germany, Norway and France, UTIP carried out a comprehensive feasibility study of the various development alternatives in the lower reaches of the Zambesi River downstream of the Cahora Bassa Dam. It developed the most promising alternative (the MU Project) into a detailed feasibility study.

3) **Need for the Project:** The non-industrial electricity demand of Mozambique has increased substantially in recent years, and is forecast to require some 400 to 450 MW at an average load factor of 0.62 by the year 2010. With the MOZAL Aluminium smelter and other major industrial projects, the total demand of the country is forecast to reach some 1,700 MW in 2010.

   The main market for electricity from the project, however, will be in the Republic of South Africa (RSA). In RSA, with moderate growth in demand for electricity and a moderate reserve margin, new supply-side management options are required for commercial service from 2006 and new demand-side options have to be commissioned. The higher energy demand experienced during 2001 in this country has resulted in a decrease in the system operating reserve margin from 22% in 2000 to 18% in 2001. This challenge calls for Eskom to continue to research and generate data on a variety of options, including regional power options. In 2001, Eskom's peak demand on the integrated power system reached 30,599 MW. When adding other countries, the Southern African Power Pool's (SAPP) estimated annual maximum demand is expected to reach 47,400 MW by 2010. MU forms part of the recommended actions in the Southern African Power Pool's (SAPP) Integrated Electricity Plan, known as the SAPP Pool Plan. According to most recent estimates, existing capacity in the sub-region will be fully utilised by about 2007-2008.

   Development Strategy and Sponsor: The Government of Mozambique (GRM) intends to award a Build, Own, Operate and Transfer (BOOT) concession to a developer through companies established in Mozambique specifically for the implementation and operation of the project. The concession period of the project can be expected to be 25 to 30 years starting at commissioning. Two Project Companies are envisaged, one for generation and one for transmission. The two companies can have different ownership and financing arrangements, but will be organised so that coordination of the project implementation is secured.

   GRM and RSA have signed a general agreement on cooperation for the project. The agreement secures the project open access to transmission within RSA and a limited and equitable ownership in the Project Companies by each of the two governments. This Agreement serves to underscore the commitment by each of the two governments. In terms of this agreement, 10% of the shares of the Project Companies are reserved for each of the two governments. Another 20% are intended to be taken by private and/or public investors of the two countries. This concerns in particular the electricity utilities Eskom of RSA and Electricidade de Mozambique (EdM) of Mozambique. For the remaining 60% share of the Project Companies, an international investor, who has the necessary financial strength, project management skills, and proven hydropower experience, will be identified and engaged.

4) **Project Objectives**: The hydropower sector is an important part of the Mozambican economy and the GRM attaches great

importance to the involvement of foreign investment in the development and operation of new hydropower plants. The objectives of the project are to: (a) generate revenue to Mozambique and create employment through the development of the country's hydropower resources which would be invested in projects with a poverty reduction dimension, and (b) promote regional cooperation through power exchange with countries in the sub-region.

5) **Project Description:** Following studies, a staged development of the hydropower potential in the Mozambican section of the Zambesi has been defined. The first stage of this development concerns the MU Hydropower Project. Subsequent stages could include Cahora Bassa North (CBN) and expansion of MU with Boroma dam and power plant downstream for re-regulation. The installed capacity of the plant will be 1,300 MW (4x325 MW vertical Francis turbines).

Energy generated by the new power plant is to be supplied to the 400 kV substation near Maputo (about 1,450 km of transmission). Due to a number of industrial projects that are envisaged in various parts of Mozambique, it is too early to predict the grid configuration encountered in 8 to 10 years time. The feasibility studies conclude that the recommended transmission solution for the first stage development of the project comprises two single circuit 400 kV AC overhead transmission lines between MU and the 400 kV substation near Maputo (about 1,540 km of transmission). At the same time, MU power plant should be linked to Songo switchyard (Cahora Bassa) through two 60 km single circuit lines at 400 kV. The link with Songo will facilitate, inter alia, power flow from MU to Zimbabwe.

6) **Investment Cost and Sources of Financing:** Estimated cost including physical and price contingencies but excluding Interest During Construction (IDC) in 2001 is given below.

Dam and power plant	US$767million
Transmission lines	US$853million
Environmental management	US$15 million
Total	US$1.6 billion

[Total capital cost of generation plant, without IDC, is 782/1300 = US$602/kW; Exchange Rate: EUR 1 = US$ 0.9]

Given the size and complexity of the project, as well as the general development of the industry, the intention is to implement it through a privately funded BOOT scheme. It is intended to finance the project through bank debt and Export Credit Agencies (ECAs) facilities to be raised by various shareholders of the Project Companies.

7) **Feasibility of the Project:** In 1999, UTIP commissioned the joint venture Lahmeyer International-Electricité de France-Knight Piésold to carry out a comprehensive study of certain promising development options in the Zambesi River downstream of Cahora Bassa. The study has been reviewed by UTIP's in-house consultants, including a Panel of Experts contracted by UTIP.

The project has been shown to be technically viable. The study included extensive geological investigations such as drilling, water pressure tests, and laboratory tests. The conclusions of all these investigations were that the geological conditions are excellent. Hydrological data from 1907 through 1999 were used to determine the main parameters of the project, such as flood levels, firm power, etc. Since the project will be part of a major interconnection grid, 95% reliability was adopted for energy calculations.

Alternative solutions of transmitting power from the MU plant have been studied, including upgrading of the existing HVDC line from Cahora Bassa. The transmission solution studied will create a backbone of the integrated power network in Mozambique and provides the added advantage of facilitating electrification of Mozambique without significant additional cost.

The MU Project is a highly attractive financial proposition. Based on a best guess of future values for key input variables, the so-called base case set of assumptions in the financial and economic analyses, the Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR) are calculated at 17% and 15.3 % at discount rate of 12%.

Quantifiable environmental costs associated with the project have been included both in the economic and the financial assessment, except impacts downstream of the dam. The potential environmental benefits and revenues resulting from reduction in emission of greenhouse gases relative to thermal alternatives have not been factored in. Dependent on the development in tradable emission permits, the project provides

significant potential for an upside return on investment.

The average price of electricity delivered to the grid of the SAPP in the Maputo and Johannesburg areas will be around US cents 5.4 per kWh in 2010. The prices of electricity applied are based on estimates of the cost of thermal power replaced by the project, ie base load coal-fired thermal power, mid-merit combined cycle gas turbines and peak load open cycle gas turbines. It is assumed implicitly that the present excess generating capacity available in RSA would have been absorbed by the time the project is ready for commissioning. Gross market prices for energy delivered to the power purchaser, inclusive of wheeling charges in the base case, is estimated at 3.4 US cents per kWh.

8) **Socio-Economic Benefits:** As a result of tax agreements, significant taxes, (custom) duties and dividends will become available to GRM for development of a very poor country. A large number of jobs will be created, in particular during the construction stages, for local workers in an impoverished environment.

There will be accelerated development of the Zambesi valley, which has been established as a special fiscal and customs region. The project will be a step forward to realising the full hydroelectric potential of Mozambique. Electricity at competitive prices will be provided to the SAPP.

9) **Environmental Sustainability:** For the generation part of the project, an Environmental Impact Assessment (EIA)/ Social Impact Assessment (SIA) has been undertaken as part of the feasibility study. The area consists mainly of fairly steep woodland and a mosaic of shrub-land with small farmland patches. The shrub-land provides relatively low quality grazing, and the woodland has no commercial value. Crop losses at MU are estimated at US$ 112,500 annually.

Similarly, the ratio of inundated area to installed capacity of 7.7 ha/MW is relatively low by international standards. The table above compares the environmental impacts of MU against comparable hydropower projects in the region. The EIA/SIA study thus concluded that the environmental and social impacts of MU are quite limited in comparison with the size of the project.

The number of people likely to be displaced by the MU reservoir is evaluated at about 260 households or, in other terms, 1,400 people and some livestock. The project is exceptional in displacing so few people compared with the size of the project.

	MU	CB	Kariba
Resettlements (Persons/MW)	1.08	12.0	42.2
Catchment Area (km^2)	97	2,675	5,577
Catchment Area/MW (km^2/MW)	0.075	1.29	4.13

It is envisaged that the Project Companies need to investigate the EIA impacts of the downstream river fluctuations due to mid-merit operation and peaking, and undertake an EIA/SIA on the power transmission line route once the final layout of the transmission system has been determined.

10) **Issues and Proposed Actions:** Donors, for their involvement in the project, expect that investors be selected through fair competition of potential investors. Therefore, UTIP will have to involve key multinational financing institutions during the preparation of pre-qualification documents and pre-qualification of investors.

Furthermore, the success of the project depends on the liberalization of energy market in the SAPP in general and RSA in particular. UPIT should liaise with the SAPP Coordination Centre and potential importing countries to conclude a Memorandum of Understanding (MOU) before the commencement of negotiations for the formation of the Project Companies.

11) **Proposed Involvement of NEPAD:** NEPAD's assistance will be required in promoting the project, in addition to the effort made by GRM, to ensure that project development proceeds. Specifically, NEPAD would assist in the liberalization of the energy market in the sub-region in general and RSA in particular for the export of power from MU. Furthermore, NEPAD is expected to bring the project to the attention of potential investors/facilitators to mobilize financial resources for the project. Once the Project Companies are formed, NEPAD will regularly monitor the implementation of the project to ensure its successful completion, and on completion make an assessment of its impacts on poverty reduction in the continent.

12) **Plan of Action for Project Implementation:** The implementation of the project can be grouped into three main phases and includes

development, financial resource mobilization and construction. Substantial time is required before construction can start. The project needs to be defined, investors have to be identified and selected, and a host of agreements have to be concluded in order to secure financing. The current status of the four phases is summarized below.

- ***Development:*** The feasibility study of the project has been completed and the GRM will soon approve the study. The process for the pre-qualification of investors has started by drafting the pre-qualification document and consultation with key multilateral financing institutions. Consultation has also started on the conclusion of the MOU between the GRM and RSA covering the involvement of the two countries in the development of the project and the export of the power to RSA. The Project Companies are scheduled to be in place in the 3rd Quarter of 2003.

- ***Financial Resource Mobilization:*** Following the formation of the Project Company, resources for the project will be mobilized. The possible sources of financing are bank debt and ECAs facilities. The financing plan is expected to be completed towards the end of 2005.

- ***Construction:*** It is planned that construction of the project will commence in the 1st Quarter of 2006 and be completed and commissioned by the end of 2010.

13) **Conclusions:** The project is technically feasible and economically viable with minimum environmental impact. The political climate and the measures taken by GRM to liberalise the economy would attract investors to develop MU.

The project would generate revenue for the GRM, which could be utilized for projects that would contribute towards poverty reduction and providing basic services to the population. The project would create employment for the population that would improve their welfare. Furthermore, the project would have very low environmental impacts, which could be mitigated through implementing appropriate measures. The project would also provide cheap hydropower to the sub-regional countries, specifically to RSA, as opposed to developing generation capacity from new coal-fired power stations, thus reducing greenhouse gas emissions. The project will be a significant step forward in addressing such issues, thus having enormous potential in terms of NEPAD's poverty reduction goals. The implementation of the project is therefore to be supported for immediate implementation.

ETHIOPIA-SUDAN POWER SYSTEMS INTERCONNECTION PROJECT ASSESSMENT REPORT

1. **Introduction:** The proposed Ethiopia - Sudan Interconnection will link Debre Markos substation, located north west of Addis Ababa, to Roseires Power Station switchyard located in eastern Sudan.

2. **Background:** The idea of interconnecting the Ethiopian and Sudanese grids was introduced in the 1982 Master Plan Study (ACRES International) focusing on expansion of the Ethiopian power system. The original feasibility study was prepared in 1988 by the consultant IVO International with financial assistance from the Government of Finland. Unfortunately, the implementation of the project could not proceed immediately. The two governments, however, pursued the development of the project by updating the feasibility study in 1995, which was financed by the African Development Bank (AfDB).

   Ethiopia's technically exploitable hydropower capability is estimated at 30,000 MW. In October 2001, the Ethiopian Electric Power Corporation (EEPCO) launched the Ethiopian Power System Expansion Master Plan (EPSEMP) that will be used as a guideline for the next 25 years for all activities of the Corporation. Developing new hydropower sources as well as generation from combustion turbines are amongst the strategic actions of the Master Plan. Five hydroelectric plants with an installed capacity of 665 MW have been planned for construction over a period of five years to 2005. The proposed Ethiopia - Sudan Interconnection forms an integral part of this Master Plan.

   Sudan has an installed electric generation capacity of about 500 MW, managed by the state owned National Electricity Corporation (NEC). Of this, around 60% is accounted for by thermal generation (mainly from oil/gas) and 40% by hydropower. Faced with a power shortage, Sudan has plans to add additional hydropower generating capacity. The largest projects are the proposed Kajbar (300 MW) and Merowe (1250 MW).

   In line with normal generation expansion plan principles, the generation expansion plans in the two countries have been formulated to meet demand for the next 5-10 years. These separate plans would result in continuous excess capacity in the systems, unless drought reduces generation, which could be exported to the neighbouring countries. The project is formulated to enable the two countries to optimize the operation of their systems and support each other during emergencies.

3. **Need For the Project:** It has been recognised that the Ethiopian and Sudanese power systems are quite complementary and a tie-line between the two countries could generate clear benefits in the intermediate future and long-term. Generation capacity expansion in Ethiopia was foreseen to rely on the construction of relatively large hydropower plants. Even though it has good potential in some large hydropower projects, the Sudan would continue to need thermal power to satisfy projected consumption growth, given the recent discoveries of hydrocarbon in the country. Due to step-by-step capacity additions in Ethiopia, surplus hydro energy was planned to be transmitted to the Sudan to replace fuel oil in thermal power generation to save the oil for export. Besides, the project would enable the two countries to support each other during emergencies and optimize the operation of their power systems.

4. **Development Strategies and Sponsor**: The project would be developed by governments of the Sudan and Ethiopia (the sponsors of the project) with financing from multilateral/bilateral sources. It is expected that each country will borrow funds for the network to be constructed in their respective countries. The two countries would share the benefits equally, including the saving in thermal generation, which accrue as a result of the project implementation.

   The governments of the Sudan and Ethiopia would need to start negotiations on signing a Memorandum of Understanding (MOU) to declare their intent to develop, operate and maintain the tie-line. Following the signing of the MOU, the national power utilities of the two countries, NEC and EEPCO, need to sign a Power Purchase Agreement (PPA), a Construction Agreement and an Operation Agreement. The signature of the various Agreements is a pre-requisite for sourcing financing for the development of the project.

5. **Project Objectives:** The project has been formulated on a common understanding by the two countries that they would continue to implement their national power development plans irrespective of the implementation of the interconnection project. The objective of the project is to transmit the Ethiopian surplus

hydropower to the Sudan to replace thermal generation in the Sudan and sharing equally the benefits realized as a result of oil and spare parts savings from thermal generation. The interconnection supports the least-cost supply principle, where the Ethiopian hydro-energy, which otherwise would have been spilled, is sold to Sudan. Furthermore, the interconnection would make two-way operations of the tie-line possible, thus providing mutual assistance during system disturbances, the sharing of reserves for improved system reliability and optimization of the two power systems. An additional objective is to prepare a framework for realizing other joint operation possibilities, such as opportunities for short-term emergency deliveries of power in both directions, export of thermal power from one country to the other during unfavourable hydrological conditions, and optimisation of use of reservoirs.

6. **Project Description:** The project consists of the construction of 428 km of 230 kV single circuit line with 80% in Ethiopia and 20% in the Sudan. The line will be constructed in lattice steel towers and all aluminium alloy conductors (AAAC) of 2x315 mm^2 cross section per phase from Debre Markos substation in Ethiopia to the Roseires substation in the Sudan, which is the least-cost interconnection solution, to transmit power of 100 MW. The towers would be self-supported steel lattice towers, with the height of the towers being defined according to the ground contour on the line route. The foundations would be mostly steel grillage type for the suspension towers but concrete foundations will be used in special conditions.

   Debre Markos is a new 220 kV substation where all reservations for the tie line to the Sudan have been made. The Ethiopian line will be connected to the existing 230 kV line with a complete line bay at the Roseires switchyard. The line bays for the interconnector at both substations will consist of switching equipment, measuring transformers, power line carrier (PLC) coupling devices and line traps, surge arrestors and compensating reactors.

   A small scale Supervisory Control and Data Acquisition (SCADA) computer system will be used to monitor and control the tie line operation. The SCADA system will include master station, uninterruptible power supply, and remote terminal units (RTU) with DC power supply.

   The telecommunication system will include one dual channel phase-to-phase connected PLC-link that will be installed into the high voltage tie line.

7. **Investment Cost and Sources of Financing:** The cost of the project including contingencies but without interest during Construction (IDC) is estimated at US$51.6 million. It is assumed that the project will be implemented as one package jointly by the government of Ethiopia and the Sudan. 95% of the investment will be financed from Multilateral/Bilateral sources, and the remaining 5% by the Government of Ethiopia (GRE) and the Government of Sudan (GRS).

Source	US$ (Million)
Multilateral/Bilateral-Ethiopia	36.8
Multilateral/Bilateral-Sudan	12.2
GRE	1.9
GRS	0.7
Total	**51.6**

The financing will then be divided between the two countries in accordance with the volume of work implemented in their respective countries. Accordingly, GRE and GRS will finance 75% and 25% respectively from loans and internal sources. The adjacent table presents an indicative financing plan.

8. **Feasibility of the Project:** Technical viability of the tie-line options has been analysed, using load flow, fault current and stability calculations. The aim of this task was to recognise possible needs of network reinforcements, in cases with and without the interconnector. The least cost interconnection solution was then selected, relying on estimates of the total costs, including investments, cost of losses and operational costs.

   The financial analysis of the interconnection has been done using the following principles. The main, measurable economic benefits of the project originate from oil and spare part savings in thermal generation in the Sudan. The savings result from transmitting the available surplus hydropower from Ethiopia to the Sudan. The savings volume has been calculated by comparing the present situation with the project with the best alternative electricity mix in the Sudan. The costs of the interconnection project consist of the investment costs and the operation and maintenance (O&M) costs over the lifetime of the project and the incremental operation and maintenance in hydropower generation in Ethiopia. The local material and labour are shadow priced and the avoided environmental costs are taken into account in the economic analysis.

The Financial Internal Rate of Return (FIRR) and Economic Internal Rate of Return (EIRR) of the project are estimated at 12.9% and 14.9% respectively.

9. **Socio-Economic Benefits:** The project, through replacing some of thermal generation in the Sudan with Ethiopian hydropower, will generate savings as a result of avoided fuel and spare parts costs in the thermal generation. Furthermore, savings would be realized through reduced reserve requirements and higher system reliability. The savings thus realized would enable GRE and GRS to make additional investments on projects that would contribute to economic development and poverty reduction. Besides, a number of jobs will also be created, in particular during the construction stages, for local workers in impoverished environments.

10. **Environmental Sustainability:** The tie-line will start from Debre Markos in Ethiopia and follow the main roads to Injibara, Mambuk, Guba and Bumbabi towns on the border between the two countries, and continue to Roseires in the Sudan. The line would be a single circuit 230 kV line, erected on lattice steel towers and the line will be constructed in the outskirts of the towns. No new substations are constructed, but the line is connected to existing substations, namely Debre Markos and Roseires. The project has, therefore, low environmental impacts and will be mitigated by employing appropriate measures during its construction and operation.

    As the basic idea is to replace oil-based thermal generation in the Sudan by hydropower imports from Ethiopia, the decrease in flue gas releases from thermal power plants in Khartoum would have positive impacts on the environment.

11. **Issues and Proposed Actions:** The financing agencies, to support projects in the Sudan, may require that the country's internal conflict and its default on loans is resolved which would require NEPAD's assistance. In parallel, NEC and EEPCO, with a mandate from their respective Governments, need to start negotiations, first on the MOU, and then on the Construction Agreement, PPA and Operation Agreement in order that the project is initiated.

12. **Proposed Involvement of NEPAD:** The assistance of NEPAD will be required to assist the Government of the Sudan in addressing issues related to governance, internal conflict and on loan arrears. Furthermore, NEPAD would assist in expediting the conclusion of the various Agreements and mobilization of funds for the project. NEPAD would regularly monitor the implementation of the project to ensure its successful completion, and on completion make an assessment of its impacts on poverty reduction in the continent.

13. **Plan of Action for Project Implementation:** GRS should address the issues related to internal conflict and loan arrears. In parallel, the two countries should conclude the Power Purchasing, Construction and Operation Agreements, and review the feasibility study. Once the outstanding issues are resolved and the various agreements are concluded, the countries will approach financial institutions to source financing for the project. The implementation of the project will be completed in 24-30 months after securing financing.

14. **Conclusions:** The project is technically feasible and economically viable with minimum environmental impact. The savings resulting, mainly through the replacement of thermal generation by hydro generation, would be shared equally by the Sudan and Ethiopia. Such savings are expected to be utilized for development/poverty reduction projects to create employment and provide basic services to the population of the two countries. Furthermore, the project would have very low environmental impacts. The project will be a significant step forward in addressing such issues, thus having significant potential in terms of NEPAD's poverty reduction goals.

    However, the political climate and the civil war in the Sudan, and its arrears with loan repayments to development finance institutions might make it difficult for the Sudan to raise its share of the investments. The conflict related issues would have to be resolved in order for the full investment of the project to be raised and the project implemented. The implementation of the project is therefore to be supported contingent on the resolution of issues related to the conflict and loan arrears.

WEST AFRICA POWER POOL (WAPP) PROGRAM
PROJECT ASSESSMENT REPORT

1. **Introduction:** The West Africa Power Pool (WAPP) project will integrate national power grids of five coastal countries (Benin, Côte d'Ivoire, Ghana, Nigeria, and Togo) and three land-locked countries (Burkina Faso, Mali, and Niger).

2. **Background:** The ECOWAS Master Plan recommended development of power production plants and interconnection of electricity grids of the ECOWAS member countries. It also suggested the following measures to convert the Master Plan into a WAPP Project: a) adopting the Master Plan by ECOWAS Ministers of Energy; b) establishing the legal and regulatory framework for power pooling in West Africa; c) having a Memorandum of Understanding (MOU) for the electricity companies, fixing a framework for cooperation, regulating power pooling and determining the level of participation by each country; d) preparing the WAPP project document; e) preparing and organizing of a donors meeting; and f) resolving such trade related problems as billing disputes and long-standing account payables that have marred electricity trade in countries in the past, namely in Côte d'Ivoire, Ghana, Togo, Benin, and Nigeria.

   In November 1999, ECOWAS Energy Ministers in a meeting held in Accra, whilst recognizing the need for better integrating the region's unevenly distributed energy resources to support its development, approved the formation of the WAPP as well as an indicative plan for developing new generation plants and high voltage transmission line interconnections within the region.

   In September 2000, in a meeting held in Lome, ECOWAS Ministers approved the Master Plan and adopted a MOU to establish the WAPP Project. The MOU included mutual obligations of the parties concerned to create an oversight, coordination, and administrative apparatus to develop the WAPP under the aegis of ECOWAS. The Administrative apparatus was later created under ECOWAS.

   Further, the Steering Committee during its meeting held in Accra on 5 April 2002, approved the WAPP's objectives, organization structure, and regulatory arrangements.

3. **Need for the Project:** The ECOWAS region is short of capacity to supply adequate and reliable power to its users. In order to meet the growing power requirement, the ECOWAS Master Plan approved by its members in September 2000 recommended construction of several new power plants and high voltage transmission lines. It was estimated that the construction of power plants and transmission lines as needed by 2010 would cost about US$ 13 billion. However, the ECOWAS countries, due to various factors are unable to mobilize resources from their internal cash generation and/or external borrowing. The lack of cash and credit is an impediment towards realizing the objectives of the ECOWAS Master Plan, and private finance will be needed to implement the recommended power plants and transmission line interconnections. However, in terms of raising private capital in the near future, West Africa's power sector faces two critical constraints, namely, its small size and investors' perception of the region's high risk.

   Potential lenders and investors will view the implementation of the WAPP Project as a key step towards mitigating these risks. The WAPP, by integrating the region's power sector, will result in increasing the size of West Africa's power sector, and in turn, West Africa will be able to lure potential investors into the power sector. Regarding country risk, the implementation of the WAPP, through its well-managed and transparent energy trading across borders, will help alleviate investor concerns about country risks.

   Thus the project is justified on the basis of the above considerations. It will promote private investment in the power sector as needed for creating additional generation and transmission capacity to meet the demand for electricity in the ECOWAS member countries.

4. **Development Strategies and Sponsor**: West Africa as a sub-region is endowed with energy resources. However, energy resources are unevenly distributed among the fourteen ECOWAS member countries. If West Africa were able to raise significant amounts of private capital, it would be able to develop its energy resources adequately. However, the West African States face critical constraints in raising huge amounts of capital due to small country size and high country risk perceived by investors. In order to address the above

problems and raise investor confidence, ECOWAS has sponsored the WAPP project.

The project will be developed by the governments of ECOWAS member countries with funding from multilateral and bilateral donors. It is expected that each of the ECOWAS member countries concerned would borrow funds for the transmission line interconnection to be constructed in its country.

5. **Project Objectives**: The objectives of the project are:

a) to institutionalize more formal and extensive regional cooperation in the development of cost effective electricity infrastructure and energy trading networks in order to increase energy supply and energy security within the region;
b) to improve electricity system reliability and power quality throughout the region;
c) to lower electricity system costs by: increasing economic trading of both power & energy within the region; optimizing the utilization of energy resources in the region; managing more efficiently and effectively the region's seasonal and weather related imbalances; and reducing the overall amount of capital needed for electricity system expansion in the region by promoting implementation of bankable projects on a least cost basis;
d) to create an investment environment for the region's power sector that will facilitate the financing of priority generation and transmission projects;
e) to create an ongoing forum in which regional power issues can be discussed and worked out within an agreed policy framework and set of operating principles;
f) to create a transparent and reliable mechanism for the prompt settlement of commercial electricity transactions; and
g) to increase the overall level of electricity service within the region through implementation of priority generation and transmission projects as the basis for economic development.

6. **Project Description:** The project, as conceptualized, will be implemented in several phases. Phase I of the project is termed the West Africa Power Market Development Project (2002-2006). The project components are given below:

<u>Component A: critical infrastructure to expand cross border power trade as given below</u>:

a) Cote d'Ivoire (CI) – Mali Interconnection: The project involves construction of 234 km of 225 kV line, installation of 225 kV outgoing bay at Ferkesedougou (CI) and erection of 225 kV substation at Sikasso (Mali).
b) Ghana–Burkina Faso (BF) Interconnection: The project involves construction of 198 km of 225 kV line, erection of 225 kV substation at Bolgatanga (Ghana) and Ouagadougou (BF).
c) Ghana-Togo-Benin (reinforcement): The project involves construction of 280 km 330 kV line and erection of 330 kV substations at Prestea/Tema (Ghana) and Lome (Togo).
d) 330 kV Ikeja West (Nigeria) to Sakete (Benin) Interconnection: The project involves construction of 70 km of 330 kV line, and erection of 330 kV outgoing bay in Nigeria and new 330 kV substation in Benin; and
e) other equipment.

<u>Component B: Policy and capacity building:</u>

a) establishment of website;
b) harmonization and implementation of appropriate legal, regulatory, and institutional policies; and
c) establishment of Regulator, and Installation of Load Dispatch and Communication System.

The financing for components A & B will be mobilized through promotion by the World Bank except for Ikeja West (Nigeria) to Sakete (Benin) interconnection, which is earmarked for AfDB and West African Development Bank (BOAD).

7. **Investment Costs and Sources of Financing:** The project components expected to be funded by the World Bank are estimated to cost about US$ 151 million including 15% contingencies, whilst the project component to be funded by the AfDB and the West Africa Development Bank is estimated to cost about US$ 41 million including 8.5% contingencies.

The World Bank, the AfDB, and West African Development Bank are possible financiers of the project. Other donors supporting this project are: Japan (US$

829,500 to finance project preparation) and French Cooperation (Euro 1.1 Million for institutional support to ECOWAS).

8. **Feasibility of the Project**: Currently, the project is under preparation by the World Bank. A preparatory Study is underway involving (a) Environmental and Social Impact Assessment of each of the high voltage transmission line interconnections described in Section 6; (b) IT System Design Activities, and (c) Economic and Financial Analysis of the high voltage transmission lines. In addition, ECOWAS is also undertaking a Stability Study concerning the project.

9. **Socio-Economic Benefits**: The deteriorating power quality and inadequate supply are critical economic issues for governments of the ECOWAS region. Poor quality has been marked by power surges and low voltages, damaged appliances and equipment. Consumers and industries spend huge sums of money on repairing them. Consumers also spend money in acquiring back-up generation facilities and imported fuels. This increases the cost of production and slows down the economic growth. The implementation of the WAPP, as demonstrated by the ECOWAS Master Plan, will render benefits to the states concerned in terms of higher availability of electricity and reduced cost of supply. The benefits will arise due to efficiency gains derived from: reduced reserve margins due to pooling of resources; economies of scale; better management of daily and seasonal peak demands, better management of hydrological regimes and risks; and expansion of the supply market thereby attracting potential international investors.

10. **Environmental Sustainability**: The EIA Study of the Project is progressing.

11. **Issues & Proposed Actions**: Investors perceive West Africa as risky due to the small size of economies and high political risk. The implementation of the WAPP Project will be viewed by potential investors as a key step toward mitigating these risks. The WAPP, by integrating the region's power sector, will result in increasing the size of West Africa's power sector, and in turn; West Africa will be able to lure potential investors into the power sector. Regarding country risk, the implementation of the WAPP including the establishment of the institutions, the Energy Charter/Protocol and the regulatory mechanism, will help alleviate investor concerns about country risks.

12. **Involvement of NEPAD**: NEPAD's assistance is required to ensure that project development proceeds, that financial resources are mobilised for the project, including facilitating private sector participation in the implementation of this project in consultation with ECOWAS.

    Recently, the ECOWAS Energy Ministers meeting held in Accra, Ghana, has agreed on the projects and their objectives, organization structure, and regulatory arrangements. However, agreement on the Energy Charter/Energy Protocol as drafted by the Consultant could not be reached. NEPAD's support will be necessary to facilitate countries' agreement on the Energy Charter/ Protocol-a key to facilitate private sector investment in the West Africa.

    NEPAD will regularly monitor the implementation of the project to ensure its successful completion, and on its completion make an assessment of its impacts on poverty alleviation in the continent.

13. **Plan of Action for Project Implementation**: The project implementation path as indicated by the World Bank is: Environmental Study - by end November 2002; Economic Justification of the Investments - by September 2002; Project Appraisal - by December 2002; and Board Presentation of the Project - by June 2002.

    The AfDB launched a mission to Nigeria, Benin and Togo in March 2002 to prepare the project for construction of the transmission line interconnection from Ikeja West (Nigeria) to Sakete (Benin). An Appraisal Mission will be undertaken in July 2002. After approval, the project will be implemented over a period of 48 months. The ECOWAS Secretariat, the Division of Infrastructure & Industry, will be the Project Implementing Agency.

14. **Conclusions:** The principles of an ECOWAS energy exchange program or power pool will facilitate the production and exchange of electrical energy between the countries with surplus supply and the countries in short supply. ECOWAS member countries have already agreed to implement the WAPP project in order to develop the electricity market in the West Africa.

The project will help drive down the electricity prices and improve electricity system reliability and power quality throughout the sub-region, to the benefit of consumers of member countries of ECOWAS. It has great potential in terms of NEPAD's poverty reduction goals, and thus deserves NEPAD's full support.

STRENGTHENING OF THE ALGERIA-MOROCCO-SPAIN INTERCONNECTION PROJECT ASSESSMENT REPORT

1) **Introduction**: The Algeria-Morocco-Spain power systems inter-connection strengthening project involves (a) laying of a second 400 kV submarine cable between Fardioua 400 kV substation (north of Morocco), and 400 kV Tarifa substation (south of Spain); (b) erection of 400 kV substations at Toula II (east of Morocco) and Hassin Ameur (west of Algeria), and construction of 400 kV overhead line to interconnect the two substations; and (c) strengthening of the transmission networks inside Morocco.

2) **Background**: The power systems of Moroccan and Algeria are interconnected at a voltage of 225 kV in two circuits with a total capacity of 500 MW, commissioned in 1988 and1992. The power systems of Morocco and Spain are interconnected through a 400 kV submarine cable with a 700 MW capacity, commission in 1997. These interconnections have enabled the Office National de l'Electricity (ONE), the national power utility of Morocco, to diversify its source of power supply and specifically benefit from the advantages offered by the free Spanish market. Presently, the interconnections are utilized to their full capacities.

   The Euro-Mediterranean Power Loop Study identified weaknesses in the existing 225 kV power interconnections in North Africa and recommended their upgrading. In this regard, the fifth Ministerial Conference on Energy Cooperation in the Mediterranean held in Casablanca, Morocco in February 2001, realized the perspective of the emergence of a regional market for electricity, and decided to strengthen the power interconnection among North African countries in 400 kV networks.

   The strengthening of Spain-Morocco-Algeria and Algeria-Tunisia interconnections, which were initiated in 2001, are part of strengthening the North African interconnections, which would eventually extend to Egypt.

3) **Need for the Project**: The commissioning in 1998 of the first 400 kV inter-connection between Morocco and Spain made it possible to link the whole power network in the Maghreb (Morocco, Algeria and Tunisia), which has an overall installed capacity of around 13,000 MW to the European network, which has an installed capacity 20 times higher than that of the Maghreb. The interconnection between European and Maghreb networks has supported the latter in the improvement of its supply security, reliability and stability.

   As regards Morocco-Algeria Interconnection, the interconnection has enabled the two countries to optimise the operations of their networks through exchange of electricity. As regards Spain-Morocco Interconnection, it has enabled Morocco to make savings on generation costs by partly replacing domestic thermal power generation, which are run using heavy fuel and gas oil, by importing less costly electricity from Spain. However, at present, the existing interconnections are exploited to maximum capacities and can no longer allow further power exchange as stipulated in the framework of the strengthening of the Euro-Mediterranean energy cooperation.

4) **Development Strategy and Sponsors:** The governments of Morocco, Spain and Algeria are the leading promoters of the project, which is part of the regional construction project of the Euro-Mediterranean Electric Loop as well as the strengthening of power connections of North African countries from Morocco to Egypt, in their bid to set up a North African Power Pool (NAPP). The proposed project will be implemented by the power utilities of the three countries: ONE of Morocco, Red Electrica of Spain and SONELGAZ of Algeria. The project will be implemented as a public-sector project with each country mobilizing the required financing for works to be implemented in their respective territories. There is effective coordination between the electricity boards of the power utilities for the realization of the project.

5) **Project Objectives**: The project would enable to increase the volume of electric power exchange between the Maghreb and Europe with the view to integrating the Maghreb market into the European electric power market. Specifically, the project aims at providing Morocco a reliable and low cost electricity supply through strengthening its interconnections with the neighbouring countries. The project would replace the expensive domestic thermal power generation by importing low cost electricity from Spain and thus reducing the country's oil bill. It will also increase the volume of electricity exchange between Morocco and Algeria.

6) **Project Description**: The project will involve (a) laying of a 400 kV submarine cable between Morocco and Spain; (b) erection of 400 KV stations at Toula II and Bourdim in Morocco, and at Hassi Ameur in Algeria; (c) construction of 400 kV overhead line between Toula II and Hassi Ameur through Bourdim; and (d) installation of fibre optic cables with the 400 kV tie-line; and (e) strengthening of transmission networks within Morocco.

7) **Investment Cost and Sources of Financing**: The cost of the project (on the Moroccan side), excluding Interest During Construction (IDC), taxes and customs, is estimated at US$ 280 million. The Government of Morocco has requested African Development Bank (AfDB), European Investment Bank (EIB) and French Development Agency (FDA) to jointly finance the Moroccan part of the project. The financing is expected to be secured before the end of 2002.

8) **Project Feasibility**: A project techno-economic feasibility study determined the proposed interconnection system is technically the best and financially the least cost. The study also determined the Financial Internal Rate of Return (FIRR), with and without export of power from Algeria to Spain, as 17.3% and 25.7% respectively. The study further determined the Internal Economic Rate of Return (EIRR) of the project, corresponding to export of power from Algeria to Spain, as 32.5%.

9) **Socio-Economic Benefits**: The project would benefit the Government of Morocco, the households, the industries and businesses in the country. The project would enable ONE to generate savings on the cost of fuel through replacing domestic thermal power generation by low cost electricity imported from Spain and thus reducing the country's oil bill. With the existing interconnections, ONE makes savings on the production of electricity amounting to about US$ 30 million a year. The project will further generate job opportunities.

10) **Environmental Aspects/Sustainability**: The line routes and substation sites have been selected in such a way that they will not cause major resettlements, and damage to properties and natural resources. Notwithstanding the above, measures stipulated in the recently completed Environmental Impact Assessment (EIA) study, will be implemented, both during construction and operations, to mitigate the negative impacts of the project.

11) **Issues and Proposed Measures**: The Algerian and Spanish part of the project will be financed from internal sources. However, the Moroccan part of the project is earmarked for AfDB, EIB and AFD financing. Effort should be made by the Government of Morocco to secure the funding before the end of the year in order to complete the project on schedule.

12) **Proposal for involvement of NEPAD**: NEPAD would assist in mobilizing financial resources for the project and monitor the implementation of the project.

13) **Action Plan and Schedule of Implementation**: The realization of the electric power interconnections in 400 KV between Morocco and Spain, and Morocco and Algeria was launched in October 2001. Invitations to bid for the realization of the Moroccan part of the project were sent out during the 2nd half of 2001. With the financing for the Moroccan part put in place towards the end of 2002, the completion of the interconnection project is scheduled for the end of 2005.

14) **Conclusions**: The project is technically feasible and financially profitable. It will enable ONE to make savings on the cost of fuel for domestic thermal power production through import of low cost electricity from Spain. The strong network is expected to diversify sources of power supply and encourage free electricity market in Morocco, which would then enable consumers to access power at competitive prices directly from the source of supply. The supply of low cost electricity would in turn contribute to the competitiveness of the industrial and business sectors and promote access of affordable power to the household sector.

    The project is the first part of the electric power network to be provided for strengthening the Euro Mediterranean Energy Cooperation. It will encourage private sector investments in independent power production in North African countries whilst facilitating exports of part of the energy produced to Europe. Furthermore, it will go a long way in generating benefits through optimally operating the Northern African and European power systems in an integrated from.

    The project would strengthen regional cooperation and contribute towards poverty reduction. The project therefore deserves NEPAD's full support.

ALGERIA GAS-FIRED POWER STATION AND ALGERIA-SPAIN INTERCONNECTION PROJECT ASSESSMENT REPORT

1. **Introduction:** The project will develop 2000 MW of Combined Cycle Gas Turbine (CCGT) power plant in Algeria of which 800 MW (40%) is intended for domestic consumption and the balance of 1200 MW (60%) for export to Europe through Spain. The CCGT plant will be sited in two places viz. 800 MW at SKIKDA (located east of Algeria) and 1200 MW at d'ARZEW (located west of Algeria).

2. **Background:** As part of the Government policy to liberalize the energy sector, a law was promulgated in February 2002 to allow participation of the various operators, including private sector operators, in power generation both for domestic demand and export. As part of this strategy, the Government of Algeria (GOA) intends to develop a 2000 MW CCGT Power Station with involvement of the private sector operators. The project will be implemented through the formation of two Project Companies including a Power Generation Project Company and Power Transmission Company. The Companies will be established under a Build, Own, Operate and Transfer (BOOT) Concession arrangement. The Power Generation Company will negotiate the sale of 800 MW directly to SONELGAS and export the 1200 MW to Europe by wheeling the power through the network of the Transmission Company.

3. **Need For the Project:** Algeria is one of the African countries, which is a main supplier of gas to Europe. Algeria accounted for one-fifth of EU natural gas imports in 2000 (Russia accounted for 39% in that year). As of 2001, Algeria's total natural gas export capacity, via pipeline and LNG tanker, was over 2 Tcf per year.

   Through the proposed project, Algeria will utilise its excessively high gas reserves through exports to Europe using electricity as an energy carrier, whilst the power generation on African soil would avoid the construction of a power plant in the congested European environment. The project would thus benefit both Algeria and Europe.

4. **Development Strategies and Sponsor**: GOA has established an Algerian Energy Company (AEC) to assist in the development and commercialization of electricity and gas both for domestic and external markets. It is also mandated to develop desalination plants, along with power generation, to produce potable water for domestic consumption. AEC will, therefore, represent Government in dealing with the execution of the proposed project. At the request of SONELGAS (Algeria) and RED ELECTRICA (Spain), AEC carried out a feasibility study for developing 2000 MW of CCGT power plant to cater for domestic demand and exports to Europe.

   GOA intends to award a Build, Own, Operate and Transfer (BOOT) Concession to a developer through companies established in Algeria specifically for the implementation and operation of the project. Two Project Companies are envisaged, including Generation and Transmission Companies. The two companies can have different ownership and financing arrangements, but shall be organized so that coordination of project implementation is secured. Ownership of the project will be vested in the Project Companies for a limited period of time (concession period), after which the project will be transferred back to GOA. In terms of this agreement, 30% of the shares of the Project Companies are reserved for GOA and the rest for the Private Operators.

5. **Project Objectives:** The objectives of the project are to promote the development of the huge Algerian gas potential through its transformation into electricity to accommodate the domestic demand as well as exports to Europe. The project will generate revenue for Algeria, and the development of the power station in Algeria would save Europe from developing a power station in an environment where space is at a premium. The project would also strengthen cooperation between North Africa and Europe in the energy sector.

6. **Project Description:** The project will comprise the development of 2000 MW of CCGT plant at two power stations viz. 800 MW at SKIKDA and 1200 MW at d' ARZEW. The former power station is intended for domestic use and the latter for exports to Europe. A 400 kV submarine cable will be laid and the associated substations, in Algeria and Spain, will be erected to transfer the 1200 MW of power to Europe.

7. **Investment Cost and Sources of Financing:** The cost of developing the 2000 MW power plant at the two locations, as well as the

extension of the transmission networks to Spain, is estimated at US$ 1.5 billion. The project will be financed via shareholders contribution to the Project Companies. Given that the project would be implemented through a private-public funded BOOT scheme, the project is intended to be financed through equity participation, bank debts and Export Credit Agencies (ECAs) facilities to be raised by various shareholders of the Project Companies.

8. **Feasibility of the Project:** The feasibility study undertaken by AEC proved that the proposed project, with transmission of power through a direct link between Algeria and Spain, would cost EURO 6/MWh, and is cheaper than transmitting the energy to Europe through the Moroccan networks, but is higher than the transmission cost of EURO 2/MWh in Europe. However, with other factors, including concerns on environment/nuclear power stations and availability of space for power stations factored into the project cost, the Europeans are expected to support the relatively high tariff to make the project viable.

9. **Socio-Economic Benefits:** As a result of tax agreements, significant taxes, (custom) duties and dividends will become available to GOA for development of a very poor country. A large number of jobs will be created, in particular during the construction stages, for local workers in an impoverished environment.

10. **Environmental Sustainability:** The project involves the construction of gas-fired power stations with negligible pollutant emissions, and the transmission line will mainly traverse under the sea, which would not result in any population displacement. Notwithstanding the above, an Environmental Assessment will be undertaken to identify possible negative impacts of the project and to implement mitigating measures during construction and operation.

11. **Issues and Proposed Actions:** The generation and transmission cost of electricity generated from the project is higher relative to the tariff for power generated from European sources. However, when environmental and other benefits are factored into the project cost, the associated electricity tariff could be justified. GOA should promote the viability of the project mentioning the additional benefits indicated above.

12. **Involvement of NEPAD:** NEPAD's assistance will be required in promoting the project, in addition to the effort made by GOA, to ensure that project development proceeds. Furthermore, NEPAD is expected to bring the project to the attention of potential investors/facilitators to mobilize financial resources for the project. Once the Project Companies are formed, NEPAD will regularly monitor the implementation of the project to ensure its successful completion, and on completion make an assessment of its impacts on poverty reduction in the continent.

13. **Plan of Action for Project Implementation**: The Project Promotion has started, with issuance of Pre-qualification Documents to 26 shortlisted potential investors in May 2000. Of the 26 Potential Investors invited, 5 submitted the relevant documents for pre-qualification and all of them qualified in the Technical and Economic Evaluations. The 2nd phase of the pre-qualification exercise will involve the evaluation of Commercial Proposals and the selection of groups of investors for competitive negotiations, which is targeted for the 2nd quarter of 2002.

    The successful investors are expected to require some time to establish agreements, etc among their own investor groups and to incorporate Project Companies in Algeria. The implementation of the project would take two years after the project companies are put in place. With the Concession Agreements signed and the financing arrangement in place by the 4th quarter 2002. It is expected that the project will be completed by the end of 2004.

14. **Conclusions:** The project is technically feasible and financially/economically justifiable. Furthermore, the project would have a balance of significant environmental benefits. The measures taken by GOA to liberalize the economy would attract investors to develop the project.

    The project would generate revenue for the GOA, which could be utilized for projects that would contribute towards poverty reduction, and providing basic services to the population. The project would create employment for the population that would improve their welfare. The development of the power station in Algeria would strengthen the regional cooperation between North Africa and Europe (north-south partnership).

    The project would have enormous potential in terms of NEPAD's poverty reduction goals.

The implementation of the project is, therefore, to be supported as a priority project for immediate implementation.

MOZAMBIQUE-MALAWI INTERCONNECTION PROJECT PROJECT ASSESSMENT REPORT

1. **Introduction:** The proposed Mozambique-Malawi interconnection will link the Matambo Substation, 20km from the town of Tete in Mozambique, to the Phombeya Substation near Blantyre in Malawi. It was previously planned to terminate the line at the Blantyre West Substation, 5 km from Blantyre, but due to congestion there, the line will now terminate at Phombeya Substation. About 60% of the line route preliminarily selected will be located in Mozambique.

2. **Background**: The power systems of Malawi and Mozambique show some significant differences in terms of costs and availability, which constitute the prerequisites for making an interconnection beneficial to both parties. Since 1966 Electricidade de Mocambique (EdM) of Mozambique and the Electricity Supply Commission of Malawi (ESCOM) have studied the possibility of establishing an interconnection between the power systems in the two countries. A study on the subject was made in 1986 under the auspices of the Southern African Development Community (SADC) and funded by SIDA. The study proved the feasibility of constructing a transmission system at 132 kV between Tete in Mozambique and Nkula Falls in Malawi, transferring about 50 MW. In June 1996 an update study, funded again by SIDA, was carried out by SwedPower and proposed a 220kV line between Tete and Blantyre West for the interconnection.

   However, considering possible future interconnections to Zambia and Tanzania, and interconnecting the extreme northern area of Mozambique through the Malawian network, EdM and ESCOM wish to design and construct the transmission line at 400 kV to meet the future requirements, but operate it initially at 220 kV.

3. **Need for the Project:** Malawi currently constitutes an island in SADC in that it is not electrically interconnected to any of its neighbours. All major power plants are located on the Shire River, which flows out of Lake Malawi. The Shire River also provides most of the future prospects for additional hydropower generation. The development of additional hydropower is found to be rather costly, as the fall of the river is moderate. Furthermore, the possibilities for short-term regulation of the output from the power plants on the Shire River are quite limited, as variations of the water level would cause serous flooding of cultivated land. This means that water has to bypass the stations as spilling at times when the demand is low. The power supply situation in Malawi is currently critical. Silt has depleted the main head pond capacity at the major power plant of Nkula falls, which accounts for a substantial part of the total generation. As a result ESCOM has difficulties in meeting the peak demand. The Malawi Master Power Plan of December 1998, recommended that the Mozambique-Malawi interconnection be built as a matter of urgency.

   Mozambique has a vast hydropower capacity with excellent short-time regulation facilities that may be used for meeting the increasing demand in Malawi. Considering the difference in generation cost and also the difference in respect of the capabilities for short-term regulation, the exchange of power between Mozambique and Malawi would be economically attractive for both parties. An interconnection between the two countries thus constitutes a valuable project

4. **Development Strategies and Sponsor**: The project will be implemented as a public sector project sponsored by the government of Malawi and Mozambique. In February 1998, the Mozambican and Malawian Governments signed an Inter-Governmental Memorandum of Understanding in order to implement the project. It was agreed that Malawi would import 50 MW initially (and thereafter up to 100 MW) from Mozambique or any power utility signatory of the Southern African Power Pool (SAPP).

   It was also agreed that all transmission equipment in Mozambique and Malawi should be owned, operated and maintained by the respective utilities (EdM of Mozambique and ESCOM of Malawi). The terms for the power import will be contained in a detailed contract, involving the two utilities EdM and ESCOM. There would also have to be a Power Purchase Agreement (PPA) between the parties concerned on how to make available a suitable quantity of power from Cahora Bassa for export to ESCOM.

5. **Project Objectives:** The interconnection would allow an exchange of power between Malawi and Mozambique and with any other power utility signatory of the SAPP. The project would also strengthen the regional

power grid enabling both parties to benefit from increased reliability of supply. In particular, the interconnection would significantly improve the reliability of the Malawian power system. The Loss of Load Expectancy will be reduced to the recommended level at a fraction of the cost that otherwise would be required for the installation of thermal power.

The interconnection would also reduce the impact of prolonged droughts in Malawi and ESCOM's ability to meet its demand. The power import via the interconnection may allow Malawi to defer certain heavy investments for indigenous power. The interconnection will also allow Malawi to export surplus energy generated during low load conditions when water otherwise would have been spilled.

6. **Project Description** Consultancy services will include technical support to review the existing feasibility study against recent developments and newly proposed network configuration. The review shall include updating the network configuration, stability and load flow analyses, updating of costs, and elaboration on social and environmental impacts, and firming up the project's feasibility.

The project will consist of the construction of 220 km of 400kV line, with conductor size and other parameters to be determined as part of the updated feasibility study. The single circuit overhead line will initially be operated at 220 kV. The line will be constructed from Matambo Substation at Tete in Mozambique to Phombeya Substation in Malawi. The project will include stringing of a fibre optic cable for telecommunications, which will eventually be extended to other cross-border links to improve telecommunication services in the sub-region.

The Matambo Substation at Tete in Mozambique will be extended by a new 220 kV bay connected to the existing 220 kV substation. The bay is to be located within the existing substation area. The control facilities for the 220 kV system will be installed in the existing Control Building by an extension of control panels for the 220 kV system. Whilst design has to be finalised as part of the updated feasibility study, it would be feasible to install a 220/132 kV transformer with rated capacity of 350 MVA (as per previous feasibility study) at the Phombeya Substation in Malawi and connected into the 132 kV national grid.

7. **Investment Cost and Sources of Financing:** The cost of the project, including contingencies but without interest during Construction (IDC) is estimated at US$ 51.6 million. It is assumed that the project will be implemented as one package jointly by the government of Mozambique and Malawi, and they acquire the financing package for the whole project.

Source	US$ (Million)
Multilateral/Bilateral-Mozambique	27.9
Multilateral/Bilateral-Malawi	21.1
GRM	1.5
GRMA	1.1
Total	**51.6**

The financing will then be divided between the two countries in accordance with the volume of work implemented in their respective countries. Accordingly, GRM and GRMA will finance 57% and 43% respectively from loans and internal sources. The adjacent table presents an indicative financing plan.

It is also assumed that the governments will approach multilateral/bilateral donors and meet the financing gap with long-term loans. The World Bank, as a lead partner, is promoting the project. Candidate funding institutions include the World Bank, SIDA (Sweden), NORAD (Norway), NORDIC Development Fund and the African Development Bank (AfDB). The local costs will most likely be covered from own resources of EdM and ESCOM. 95% of the investment will be financed from Multilateral/Bilateral sources, and the remaining 5% by the Government of Mozambique (GRM) as well as the Government of Malawi (GRMA).

8. **Feasibility of the Project:** In the 1996 feasibility study, the behaviour of the interconnected system was studied by simulating contingencies involving network faults and generator unit trips, and the dynamic response of the power system was reviewed. The interconnection is technically feasible. A limiting factor for power transfer over the interconnection will be some internal network constraints rather than the thermal capacity of the interconnection.

Technical viability of the tie-line options has been analysed, using load flow, fault current and stability calculations. The aim of this task was to recognise possible needs of network reinforcements, in cases with and without the interconnection. The least cost

interconnection solution was then selected, relying on estimates of the total costs, including investments, cost of losses and operational costs. The economic analysis for the selected interconnector determined the net present worth (NPW) benefit at US$96 million at 10% discount.

The proposed interconnection, where the tie-line would be designed for 400 kV, would improve the technical performance of the interconnection system, and provide facilities for future extension of the interconnection to Tanzania and Zambia. The Engineering consultant will review the system and economic analyses before proceeding with the detailed design of the project.

9. **Socio-Economic Benefits:** Electricity trade between Mozambique and Malawi will ensure adequate supply of power in Malawi at the least cost to meet the growing needs of the economy, seeing that Malawi is not yet interconnected to the Southern African Power Pool. Furthermore, savings would be realized through reduced reserve requirements and higher system reliability.

   The savings thus realized would enable GRMA in particular to make additional investments on projects that would contribute to economic development and poverty reduction. Besides, a number of jobs will also be created, in particular during the construction stages, for local workers in impoverished environments.

10. **Environmental Sustainability:** The interconnection of the power systems of Malawi and Mozambique constitutes the most viable solution to Malawi's current problems in reducing the risk of power shortages due to the receding level of Lake Malawi. The alternative solution to the interconnection is the installation of gas turbines as soon as possible. The operation of gas turbines has, however, the inherent disadvantage that it entails transportation of fuel on land and subsequent emission of pollutants to the environment, which needs to be mitigated through costly measures.

    In the 1996 feasibility study, a preliminary line route for the interconnection has been established with due consideration to environmental constraints. Accordingly, the Michiru and Thambani forest reserves as well as the Majete game reserve in Malawi and Mozambique have been avoided in the route selection. Furthermore, the route follows existing roads in Malawi and Mozambique, which limits the encroachment on the environment and utilisation of virgin ground. The need for new access roads is thus reduced considerably. The line will be connected to one existing substation, namely Matambo and one new substation at Phombeya. The project has, therefore, relatively low environmental impacts, which will be mitigated by employing appropriate measures during its construction and operation.

    As the Environmental Impact Assessment (EIA) undertaken in the 1996 feasibility study was preliminary, it has been found necessary to carry out a full environmental assessment. EDM and ESCOM have elaborated the Terms of Reference (TOR) for the EIA and will soon undertake the study.

11. **Issues and Proposed Actions:** Regarding the initial power import needed by Malawi, ESKOM of South Africa has offered to allocate part of its Cahora Bassa power allocation to EdM to supply Malawi. Furthermore, HCB has offered to supply ESCOM directly with the power available from its stand-by unit. ESCOM of Malawi has to respond to this offer and choose the alternative that suits the utility the best and conclude the PPA. In addition, ESCOM and EdM need to conclude Construction and Operation Agreements for wheeling the power through EdM's network.

12. **Involvement of NEPAD:** NEPAD would follow up to ensure that the various agreements are concluded. NEPAD's assistance will be required in promoting the project, in addition to the efforts to be made by the Governments of Malawi and Mozambique to ensure that project development proceeds. NEPAD would bring the project to the attention of potential investors/facilitators to mobilize financial resources for the project. NEPAD will regularly monitor the implementation of the project to ensure its successful completion, and on completion make an assessment of its impacts on poverty alleviation in the continent.

13. **Plan of Action for Project Implementation:** The various agreements including the Power Purchase Agreement, the Construction and Operation Agreements, are expected to be concluded towards the end of 2002. With the consultants in place by the 4th quarter of 2002, the detailed design tender documents and the EIA report will be ready in the 2nd quarter of

2003. It is expected that the donors will approve the financing for the project in the 3rd quarter of 2003. With the work contracts awarded in 1st quarter 2004, the project will be completed by the end of 2005.

14. **Conclusions:** The project is technically feasible and economically viable with minimum environmental impact. The political climate and the measures taken by GRM to liberalise the economy would attract investors to develop the interconnection.

The project would generate revenue for GRM and significant savings for GRMA, which could be utilized for projects that would contribute towards poverty reduction, providing basic services to the population. The project would create local employment for the population that would improve their welfare. The project is, therefore, to be supported for immediate implementation.

KENYA-UGANDA OIL PIPELINE PROJECT ASSESSMENT REPORT

1) **Introduction:** The proposed Kenya-Uganda Pipeline extension will link Eldoret, the current terminal of the pipeline from Mombassa, and Kampala, the capital of Uganda, over a distance of 320 km.

2) **Background:** The proposed Kenya-Uganda Oil Pipeline will form an extension to the existing Western Kenya Pipeline System, owned and operated by the Kenya Pipeline Company. The Western Kenya System (encompassing Nairobi-Kisumu and Nairobi-Eldoret) was commissioned in 1994, while the Mombassa-Nairobi pipeline is about 25 years old.

   At present an estimated 90% of the oil products are moved from Eldoret or Kisumu pipe-head to Uganda by road. A number of alternative transport options for transporting the oil products from the Indian Ocean coast to Kampala were also evaluated. These included pipeline from Mombassa to Eldoret/Kisumu and then road to Kampala; pipeline from Mombassa to Eldoret and then rail to Kampala; pipeline from Mobs to Kisumu and marine to Port Bell; rail from Mombassa to Kampala; and rail from Mombassa to Mwanza, on Lake Victoria, and then marine to Port Bell. The proposed new pipeline from Eldoret to Kampala, as an extension of the existing Mombassa-Eldoret/Kisumu pipeline, would be the least cost route.

   The Governments of Kenya and Uganda jointly commissioned a feasibility study in1996 for the extension of the pipeline; the final report of the study was submitted to the two Governments in May 1999. That study has since been updated, the report of which was completed in October 2001.

3) **Need for the project:** Uganda, Rwanda, Burundi and the Democratic Republic of the Congo rely upon Kenya and Tanzania for the import and delivery of petroleum products. These markets are currently served by a combination of routes and modes of transportation: by a pipeline from Mombassa to Kisumu and/or Eldoret in Kenya and then by road to Kampala and beyond, or by rail from Dar Es Salaam in Tanzania via Mwanza, on Lake Victoria onto Port Bell in Uganda. The markets in the above mentioned countries are growing steadily and the long-term security of supply of petroleum products is vital for the continued development of the region. The reliability of the supply of oil products will also be improved. The cost of transporting oil products from Mombassa to Kampala is high and is reflected in the high cost at the pump in the latter. The proposed new extension of the pipeline would lead to substantial savings in Uganda and neighbouring countries that depend on the supply of oil products from Kampala.

   There would be need to construct a new common oil product terminal at Kampala, Uganda to be used by all oil marketing companies in Uganda. The oil companies' existing storage and distribution depots in central Kampala are old and unsuitably located.

4) **Development Strategy and Sponsors:** The project would be developed by the governments of Kenya and Uganda (the sponsors). This would be a public/private sector partnership and it is expected that a new pipeline company would be established with Kenyan and Ugandan public and private interests. Project financing would be required for both sections of the proposed pipeline. Funding would be through multilateral sources as well as bank debts and export credits. It is expected that each country would borrow funds for the portion of the proposed extension in the country. It is envisaged that both countries will actively participate in the mobilisation of the necessary funds for the pipeline.

5) **Project Objectives:** The objective of the project is to provide an efficient and safe mode of transport between Eldoret, in Kenya and Kampala, in Uganda of petroleum (white) products, including diesel, kerosene and gasoline, through the construction of a pipeline between the two towns.

6) **Project Description**: The project involves (a) the construction of a pipeline between Eldoret, Kenya and Kampala, Uganda, over a distance of approximately 320 km, of which 118km is within Kenya and 202 km within Uganda; (b) adjustments to the current terminal at Eldoret, (c) installation of intermediate pumping stations, at Eldoret and between Eldoret and Kampala and (d) construction of a new common user terminal in Kampala.

7) **Investment Costs and Sources of**

Financing: The cost estimate of the proposed, including 10% contingencies, is estimated at US $ 90.5 million at 2001 price level and the breakdown of the costs are given below.

Pipeline	US$ 46.5
Eldoret Terminal	US$ 3.9
Pumping stations	US$ 5.8
Kampala Terminal	US$26.1
Sub-total	US$82.3
Contingencies (10%)	US$8.2
Total	US$90.5

The project is expected to be financed from bank debts, export credit agencies and multilateral sources. It is assumed that the project will be implemented as one package. It envisaged that in the new entity to be established, the majority shares would be held by the private sector.

8) **Feasibility of the Project**: The construction of a new pipeline between Eldoret and Kampala has been found to be technically feasible. Demand for oil products in Uganda, Rwanda Burundi and Democratic Republic of Congo is expected to grow. From hydraulic analysis, an 8-inch bore nominal pipe between the two towns has been found to be most suitable. The proposed route presents no technical difficulty; however the crossing of the Nile will require specialist techniques. It has been determined that the most economic solution of the proposed pipeline is the construction of a new common oil product terminal at Kampala, to be used by all the oil marketing companies in Uganda.

The economic viability of the project has been determined using appropriate indicators. The economic analysis is based on the assumption that construction will commence in 2002 and take two and a half years to complete, with the first full year of operation in 2005. The comparative analysis of alternative modes of transport is done over a 20-year period. Yearly operating costs of the proposed pipeline have been estimated at 1.5 % of the capital costs (of the pipeline and Kampala terminal, given in Section 6 above, equivalent to $US1.23 million, at 2001 prices. The Economic Internal Rate of return (EIRR) of the project is 21% and the project's Net Present Value is US$43 million. The financial viability of the project was also examined. Assuming a tariff of US$37 per cubic metre the Financial Internal Rate of Return (FIRR) is estimated at 25% with a Net Present Value of US$55 million.

9) **Socio-economic Benefits**: Kenya would benefit from the additional revenues received from transporting the products and from the improved pipeline infrastructure all of which would enhance economic and social development in the immediate areas and the country as a whole and contribute to poverty reduction. A potential benefit is reduced cost of tariff for the transport of oil products between Kenya and Uganda, which would, in turn be reflected in cheaper supply to the growing markets and thereby spur economic and social development, not only in the respective countries, but also in the sub-region as a whole.

There are also potential fiscal benefits to both countries. Currently, there is, at Eldoret, a significant number of incidents of smuggling of duty free oil products across the border between Kenya and Uganda. With the construction and operation of the pipeline such smuggling will be reduced considerably. There would also be reduced road accidents, and with it lower accident costs. Of major importance to both Kenya and Uganda will be less damage to the roads; the cost of annual periodic maintenance will go down by as much as 50%. The savings would be used for providing better road infrastructure and for general economic and social development, including poverty reduction.

10) **Environmental Sustainability:** The environment review in the feasibility study is preliminary. Consequently, prior to the construction of the proposed pipeline, a detailed Environmental Impact Assessment will be required.

11) **Issues and Proposed Action:** Pipeline Integrity International (PII) conducted an extensive survey of the existing pipeline and made a number of key recommendations with a schedule for their implementation in order to maintain the integrity of the existing

pipeline and prevent further deterioration in its condition. The progress in the implementation of the PII recommendations has been slow. These proposals should be adequately addressed as the potential investors would view the issue unfavourably.

The two Governments should conclude an Agreement on the formation of a new company to construct and operate the proposed pipeline extension from Eldoret to Kampala. They should also conclude a Host Government/Concession Agreement with the developer of the pipeline. There is also need to negotiate and conclude Wheeling Agreements between the parties concerned.

12) **Involvement of NEPAD:** Assistance of NEPAD would be sought in expediting the conclusion of the above-mentioned agreements, in facilitating the mobilisation of funds for the project as well as in monitoring the implementation of the project.

13) **Plan of Action for the Implementation of the Project:** The countries should, as noted, conclude the above-mentioned agreements and decide on the most appropriate public/private sector partnership arrangements for the new entity. Meanwhile, once the framework for implementing the project has been agreed upon, the front-end engineering design should be undertaken to provide overall, detailed design.

14) **Conclusions:** The project is technically suitable, economically viable and financially attractive. Kenya would gain in increased revenues from the implementation of the project. At the same time Uganda, Rwanda, Burundi and eastern Democratic Republic of Congo would benefit from reduced tariffs for the oil products, and more reliable supplies of these to meet the expected growth in demand. The increased revenues and savings would be used for further economic and social development, including poverty reduction in those countries. The project, therefore, deserves NEPAD's full support.

WEST AFRICAN GAS PIPELINE (WAGP) PROJECT
PROJECT ASSESSMENT REPORT

1. **Introduction:** The Proposed West African Gas Pipeline (WAGP) project will deliver natural gas from the Western Niger delta to Takoradi, Ghana and to Cotonou (Benin), Lome (Togo) and Tema (Ghana) through pipeline spurs.

2. **Background:** In 1982, the Economic Community of West African States (ECOWAS) proposed the construction of a natural gas pipeline throughout West Africa. ECOWAS's regional energy distribution plan (1991) and a feasibility study on the supply of Nigerian gas to Ghanaian markets (1992) further supported the need for developing a regional pipeline. A feasibility report (1990), prepared for the World Bank, confirmed the commercial viability of a pipeline to transport Nigerian natural gas to Benin, Togo and Ghana. In September 1995, the governments of the four nations signed a Heads of Agreement (HOA), broadly outlining the fiscal and legal framework for construction and operation of the gas pipeline across the four countries.

   An energy shortage the region experienced in 1997-1998 rekindled interest in the gas pipeline project. In August 1998, a consortium led by Chevron, Shell, Nigerian National Petroleum Corporation (NNPC), Ghana National Petroleum Corp. (GNPC) - now replaced by Volta River Authority (VRA), Société Beninoise de Gaz (SoBeGaz), and Société Togolaise de Gaz (SoToGaz) signed an agreement for commissioning a feasibility study on the West Africa Gas Pipeline (WAGP). The study, which was completed in March 1999, concluded that the project is technically and commercially feasible due to the potential demand of natural gas that exists in the countries concerned. The feasibility study further saw no major legal issues affecting the project implementation.

   On August 11, 1999, in Cotonou, Benin, a Memorandum of Understanding was signed by the four countries covering the legal framework for establishing the consortium for implementing the WAGP. Furthermore, a Joint Venture Agreement naming Chevron as the WAGP project manager was signed on August 16, 1999 in Abuja, Nigeria. In February 2000, the four nations signed an Inter-Governmental Agreement (IGA) establishing the framework for realizing the pipeline project.

   The IGA includes the governments' commitments to the pipeline owners and gas distributors on the conditions for development, construction and operation of the WAGP, as well as fiscal and customs policies for the venture. The project has received administrative support from the ECOWAS Secretariat.

3. **Need for the Project:** The project is needed for ensuring the economic growth in Nigeria, Benin, Togo, and Ghana. The World Bank estimates that Benin, Togo and Ghana can save nearly US$500 million in energy costs over a 20-year period as WAGP-supplied gas is substituted for more expensive fuels in power generation. Ghana estimates that it will save between 15 000-20 000 barrels per day of crude oil by taking gas from the WAGP to run its power plants. Natural gas will be a cheaper alternative to the crude oil used in the Takoradi Power Plant. The gas supplied via the WAGP could also be used for strategic projects such as Ghana's bauxite and iron ore development, phosphate development in Togo, and other industries in Benin.

4. **Development Strategies and Sponsor**: The project will be developed by a consortium consisting of public and private enterprises namely, Chevron, Shell, Nigeria National Petroleum Corporation, SOBEGAZ, SOTOGAZ, and Ghana National Petroleum Corporation/Volta River Authority.

5. **Project Objectives:** The objective of the project is to optimise the energy resources of West Africa by promoting the utilization of natural gas by industries, oil-fired power plants, and domestic consumers in Nigeria, Benin, Togo, and Ghana. The utilization of natural gas, which would otherwise have been flared, will also lead to benefits to the local and global environment.

6. **Project Description:** The WAGP will traverse a distance of about 660 km both onshore and offshore before reaching its final planned terminus at Takoradi in Ghana. The first portion of the pipeline will deliver gas to the existing Escravos-Lagos pipeline (ELP), commissioned in 1989, for supplying natural gas to Nigeria's Egbin power plant and other industrial consumers in Lagos and Ogun States. A 57 km onshore portion of the WAGP will run from Alagbado to Seme beach in Lagos State. The WAGP will continue offshore (560 km), with proposed landfall spurs at Cotonou (Benin) - 15 km, Lome (Togo) - 15 km, Tema (Ghana) - 15 km, and Takoradi (Ghana). The initial capacity of the WAGP will be 200 Mmcf/d, with a possibility of expanding it to 400 Mmcf/d as demand grows.

7. **Investment Costs Source of Financing:** The project is estimated to cost about US$ 450 million. The project will be funded by the consortium led by Chevron as indicated in Sections 2 and 4. The project is expected to be financed through Bank debts and Export Credit Agencies (ECAs) facilities.

8. **Feasibility of the Project**: The WAGP will initially transport 120 Mmcf/d of gas to Ghana, Benin and Togo beginning in 2004. Gas deliveries are expected to increase to 150 Mmcf/d in 2005, 210 MMcf/d in 2010 and be 400 Mmcf/d by the end of 2020. There is also a possibility of extending the WAGP to markets in Côte d'Ivoire. Similarly, it is also conceived that it may eventually terminate in Senegal. This concept is being hindered by the current regional instability in several countries (Liberia, Sierra Leone, Guinea, and Guinea-Bissau) that lie on the route to Senegal.

9. **Socio-Economic Benefits**: The WAGP will result in the creation of tens of thousands of jobs in the sub-region. The supply of gas will render enormous benefits to millions of unserved consumers in Ghana, Benin and Togo. New power supplies, fueled by gas from the project, will stimulate the growth of new industry. In broad terms, the utilities concerned operate about 700 MW of diesel/crude oil fired power plants. These will be renovated to utilize gas. It is estimated that about US$ 600 million will be spent on the development of new and renovated power facilities to utilize the gas. Furthermore, the utilities will benefit from the efficiency gains, which will be passed on to consumers in terms of a reduced price of electricity. The substitution of natural gas will reduce greenhouse gases significantly in West Africa. The sub-region will benefit from suppliers that catalyse direct foreign investment in new West African industries and accelerate regional economic growth and development.

10. **Environmental Sustainability:** The major positive environmental impact of WAGP will be the development and use of gas currently flared in Nigeria. Thus the utilization of natural gas, which would otherwise have been flared, will lead to benefits to the local and global environment due to reduced emission of greenhouse gases and heat. Research by ecologists suggests that routine flaring of gas at the Niger Delta facilities has stunted plant growth and reduced crop yields in the sub-region. Cleaner-burning gas supplied by the WAGP will replace petroleum products used in the generation of electricity. In order to quantify both positive and negative environmental impacts, an EIA Study of the Project is underway.

11. **Issues & Proposed Actions**: The outstanding issues are: a) Concession Agreement; b) Off-take Agreements; and c) Ratification of the concerned agreements by respective parliaments.

    The governments concerned should hold negotiations with developers to finalize the above agreements and seek approvals from respective legislatures soon in order to prevent further increases in the cost of the project.

    The risks associated with the construction of the WAGP concern the likelihood of under funding by the governments of Nigeria, Ghana, Togo, and Benin because of participation of the Government undertakings in the consortium established for development of the pipeline. Nigerian National Petroleum Company (NNPC), Ghana National Petroleum Corp. (GNPC)/Volta River Authority (VRA), Société Beninoise de Gaz (SoBeGaz), and Société Togolaise de Gaz (SoToGaz) are partners in the Consortium led by Chevron and Shell. All the four companies are obliged to meet their funding obligations to the Consortium. Under consortium terms, the NNPC, GNPC, SoBeGaz, and SoToGaz share costs with its foreign partners namely, Shell and Chevron. The budgetary constraints on NNPC, GNPC/VRA, SoBeGaz, and SoToGaz will result in delays.

    The governments should ensure that they make adequate budgetary provisions for their undertakings in accordance with obligations under the consortium.

12. **Involvement of NEPAD**: NEPAD would work with the governments concerned to help generate political support for the adjustments in policy and regulatory frameworks that are needed for this regional project initiative. NEPAD would also help the institutions concerned to access global funding. Since the project will require substantial private sector involvement, NEPAD would encourage the governments concerned to ensure that the environment for the private sector is as attractive as possible.

    NEPAD would also be instrumental in helping countries that flare gas to take a continental approach to negotiations with the Global Environment Facility (GEF), the Carbon Fund, etc.

    NEPAD's assistance is required to facilitate the realization of agreements and approvals to ensure that the project proceeds, and that financial resources for the project are mobilised. NEPAD

will monitor the implementation of the project to ensure its successful completion, and on completion make an assessment of its impacts on poverty reduction in the continent.

13. **Plan of Action for Project Implementation:** The commencement of the development phase depends on decisions and approvals indicated in Section 11 above. The developer will take about 24 months to construct the pipeline from the date of approval of the project and the completion of the project is scheduled for 2004/2005.

14. **Conclusions**: The project is technically feasible and economically viable, with significant environmental benefits. The project is also important to harness the energy resources in West Africa. The project offers regional energy security at an attractive cost and therefore stimulates industrial development at a faster pace - it is a catalyst for regional integration.

    The WAGP Project is one of the signposts for ECOWAS integration, and will support significant regional economic integration resulting in greater inter-linked efforts by the governments to pursue sustainable economic development. It has great potential in terms of NEPAD's poverty reduction goals, and thus deserves NEPAD's full support.

TUNISIA-LIBYA GAS PIPELINE PROJECT ASSESSMENT REPORT

1) **Introduction:** The proposed Tunisia-Libya Gas Pipeline extension will link Mellita terminal (Libya) and Gabes terminal (Tunisia) over a distance of 275 km. The pipeline will enable Tunisia to import natural gas from Libya.

2) **Background:** Since the commissioning in 1983 of the Trans-Mediterranean (Transmed) Gas Pipeline, which links the Rassi R'mel gas field in Algeria to Italy through Tunisia, natural gas consumption in Tunisia has developed considerably. The consumption reached 2.88 million tonne oil equivalent (mtoe) in 2001 against a supply of 3.06 mtoe including 2.30 mtoe of local production. The demand for gas is forecast to each 5 mtoe in 2006 and 11 mtoe in 2020. The country will be able to meet its natural gas demand up to 2006 from the present arrangement of import from Algeria and the development of local production. The proposed project will enable Tunisia to import natural gas from Libya to bridge the forecast supply shortfall in 2006-2007 and beyond.

   The Governments of Tunisia and Libya jointly commissioned a feasibility study in1996 to 1998 for the extension of the pipeline. The study determined that the project is technically feasible and financially attractive. The two Governments signed a Memorandum of Understanding (MOU) in February 2002 to implement the project as a public sector project.

3) **Need for the project:** Tunisia is less endowed with oil and gas resources compared with its neighbouring countries. The country is presently shifting from a situation of self-sufficiency in energy in 2000 to a situation of shortfall following the depletion of its oil reserves. A shortfall of 0.16 mtoe energy was recorded in 2001. Energy consumption dominated by petroleum products (59.1%) and natural gas (39.4%) was about 6.86 mtoe as against a supply of 6.70 mtoe. To meet growing energy demands, the Government Tunisia has defined a policy, which among other things, seeks guaranteed energy supply by diversifying its sources of supply through enhancing regional cooperation to increase the share of gas consumption to 44% in 2006. The proposed new extension of the pipeline would enable Tunisia to accommodate the forecast demand.

4) **Development Strategy and Sponsors:** The project would be developed by the Governments of Tunisia and Libya (the sponsors of the project). The project's executing agencies are the Tunisian Electricity and Gas Utility (STEG) and the National Oil Company (NOC) of Libya. These utilities will create a joint service company called Joint Gas for the implementation and operation of the gas pipeline. Agreement has been reached for the two countries to equally share the investment cost of the project. The Company will reserve the right of ownership of all the infrastructures in the Tunisian-Libya gas pipeline.

5) **Project Objectives:** The project will guarantee the supply reliable energy to Tunisia by diversifying the supply sources through stepping up regional cooperation. As specific objective, the project will supply low cost and environmentally clean natural gas to the Tunisian households, power stations and industries. It is expected that, on commissioning of the project, the rate of penetration of natural gas supply to the households would double the penetration level of 2001 recorded at 21%.

6) **Project Description**: The project involves (a) the construction of a pipeline between Mellita in Libya and Gabes in Tunisia, over a distance of approximately 275 km, of which 70km is within Libya and 205 km within Tunisia; (b) compression arrangement at Mellita and Gabes; and (c) installation of intermediate inspection stations.

7) **Investment Costs and Sources of Financing**: The cost of the proposed project, excluding Interest During Construction (IDC), taxes and duties, is estimated at US$280 million at 2001 price level and the breakdown of the costs are given below.

Item	Cost Estimate US$ (million)
Pipeline	241
Compression Station	33
Sub-total	274
Contingencies	6
Total	**280**

The project is earmarked for African Development Bank (AfDB), and Arab Fund for Economic and Social Development (AFESD) financing. The loan will equally be shared by the Governments of Tunisia and Libya.

8) **Feasibility of the Project**: A techno-economic feasibility study was undertaken in 1996-1998. The study determined, among others, (a) the quantity of the gas to be transmitted; (b) the parameters of the gas pipeline and compression stations, and the routes of the pipeline; and (c) the

investment and operational cost of the project. The study found the project financially attractive.

9) **Socio-economic Benefits**: The project will benefit both Tunisia and Libya. The project will guarantee the supply of natural gas, which is cheap compared to petroleum products, to power stations, industries, businesses and households in Tunisia. Specifically, the project will increase the penetration of commercial energy in households. It will also reduce the oil bill of the country, which has adversely affected the country's balance of payment, through substitution of heavy fuel and gas oil by low cost and environmentally clean natural gas. The sales of the natural gas, which might otherwise be flared, would generate revenue to the Government of Libya.

10) **Environmental Sustainability:** The project, through substitution of heavy fuel and gas oil by natural gas in Tunisia, would contribute to the reduction of pollution. As the project would not involve manufacturing processes, it will not produce effluents discharged to the air or soil. Apart from terminal stations, which will be incorporated in the existing industrial zones, the project major works involves laying a pipeline underground that does not generate noise. Notwithstanding the above, a process has been started to undertake an Environmental Impact Assessment of the project, which would allow instituting measures to mitigate the negative impacts of the project both during construction and operation.

11) **Issues and Proposed Action:** In February 2002, MOU has been signed between the governments of Tunisia and Libya for the implementation of the project. The MOU is still to be ratified by the Parliaments of the two countries, which is a requirement for the formation of the Joint Gas Company. The two governments should therefore expedite the ratification of the MOU and prepare the legal statue and organizational framework of Joint Gas in order to establish and operationalize the Company immediately after ratification.

12) **Proposed involvement of NEPAD:** NEPAD would promote the project. Specifically, NEPAD would facilitate the ratification of the MOU, conclusion of the various agreements, the mobilisation of funds for the project as well as monitor the implementation of the project.

13) **Plan of Action for the Implementation of the Project:** The countries should have the MOU ratified by Parliament of the two countries. Once the MOU is ratified, the Company will be formed. The utilities of the two countries will sign Gas Conveyance Agreement with the Company and between themselves Gas Purchase Agreement. Following the formation of the Joint Gas Company, the two governments will approach financiers for securing funding for the project. The project will be implemented between 2003-2007, over 42 months after the funding is put in place.

14) **Conclusions:** The project is technically suitable and financially attractive. The project would reduce pollution by the use natural gas, in place of petroleum products, in power stations, industries and households in Tunisia. The project will also contribute in reduction of Tunisian oil bills and promote competitiveness in the Tunisian industry through supply of low cost natural gas. The project will create employment opportunities and contribute to the living conditions of the population in Tunisia. Furthermore, the project will generate revenue to Libya through export of the natural gas, which otherwise might have been flared. The project, therefore, deserves NEPAD's full support.

DRC-GRAND INGA INTEGRATOR STUDY TERMS OF REFERENCE

1. **Introduction**: The Grand Inga Integrator Study is intended to investigate the possibility of developing the hydropower potential at Grand Inga and transmitting the power to the continent's sub-regions (east, west, north, south and central). The study will also look into wheeling of the power through the North African interconnection to Europe and the Middle East. Once the sub-regional power interconnection is complete, Grand Inga would serve as an integrator of the sub-regional interconnections.

2. **Background:** The Republic of Congo (DRC) has extensive hydropower resources. When considering the average potential hydropower output of 774 TWh per annum, the DRC stands third behind China and Russia, which can produce 1,320 TWh and 1,096 TWh per annum respectively. The USA and Canada follow the DRC with potential production figures of 701 TWh and 530 TWh per annum respectively. When expressed as firm power capacity, the DRC potential is equivalent to 100,000 MW of which approximately 40% is located at Grand Inga.

   Whilst abundant unused capacity is available for hydropower generation in the DRC, only 2% (2,487 MW) has been developed to date. The national grid of the DRC is interconnected to the Southern Africa Power Pool (SAPP) through the Zambian power system via a 220 kV network to export part of the surplus generation. A project has been initiated to strengthen this interconnection by constructing an additional 220/330 kV tie-line to transfer the remaining surplus power to the south.

   In 1997 a study financed by the African Development Bank (AfDB), was undertaken to exploit the hydropower at Grand Inga and transmit the power to Egypt whilst tapping the line along the route to supply Chad, the Central African Republic and the Sudan. The study recommended the installation of 26x750 MW at Grand Inga, construction of 5,300 km of 800 kV DC line, erection of 11 switching stations and 4 converter stations to supply the four countries considered in the project.

3. **Study Objective:** The objective of the study is to investigate the feasibility of developing the hydropower potential at Grand Inga to supply the sub-regions in the African continent and transmit the surplus power to neighbouring continents. If implemented, the project would integrate the power systems of the African sub-regions and the neighbouring continents.

4. **Study Description**

(a) **Technical Study:** The consultant will initially review the various studies undertaken related to the development of Grand Inga, including the Preliminary Investigation on the Development of Inga prepared by EDF (France) in 1974, and the DRC-Egypt Interconnection Study conducted by EDF/Lahmeyer in 1997.

During the DRC-Egypt Interconnection study, the consultants had advanced the Grand Inga generation study to pre-feasibility study level. During the present study the consultants will undertake additional investigations, including geological, hydrological, and optimization studies on dams and electromechanical equipment, and determine the best scheme to exploit Grand Inga's potential at feasibility level.

Once the generation study has been completed, the consultant will carry out market surveys by sub-region (central, east, west, north and south). The market survey will also include assessment of the demand potential for export to Europe and the Middle East. Through transmission network analysis (load flow and stability analyses), the consultant will determine the best transmission network schemes to transmit power from Grand Inga to meet the demand of the African sub-regions and export the surplus to the neighbouring continents. Thus Grand Inga would serve as an integrator of the African sub-region, Europe and the Middle East.

(b) **Environmental Impact Assessment Study:** The study will also assess the environmental impacts of the project both at the Grand Inga Dam and along the transmission routes and recommend mitigating measures to minimize the negative impacts and enhance the positive impacts. Whenever possible the costs/benefits will be valued in monetary terms and considered in the investment and operational costs, and subsequently in the financial and economic evaluations.

(c) **Cost Estimates:** The consultant will prepare detailed cost estimates for the selected interconnector. The project cost estimate will be prepared by work component (generation, transmission line, substation, communications, environment and consultancy services) and will be broken down into foreign and local components. The cost estimates will show the physical and price contingencies separately.

(d) **Implementation schedule:** The consultant will then prepare an implementation schedule for the project. The implementation schedule will take into account the time required for sourcing of financing, selection of consultants, preparation of tender documents, selection of contractors, manufacturing and installation of equipment.

(e) **Financial and Economic Evaluations:** The consultant will identify initially the benefit generated as a result of the interconnection. He/she will carry out financial evaluations and determine the Financial Internal Rate of Return (FIRR) and the Economic Internal Rate of Return (EIRR) of the project, and determine the viability of the project.

(f) **Cooperation Agreement:** The consultant will identify and recommend a possible strategy for the development of the project and mechanisms of financing. It is expected that the project would be implemented by two project companies (a Generation Company and a Transmission Company) formed with the participation of public and private sectors, with the major share held by the private sector.

The consultant will prepare model agreements based on experience of similar cooperation agreements. The model agreements will include a Concession Agreement, Power Purchase and Wheeling Agreements, and Construction and Operation Agreements.

(g) **Conclusions and Recommendations:** The consultant will finally make conclusions as to the feasibility of the project based on the findings of the various specific studies (technical, economic, social, other benefits, environmental and operation). If found feasible, he/she will then propose an action plan for the development of the project.

5. **Study Cost Estimate and Sources of Financing**

Item	Total (US$)
Generation	2,000,000
Transmission	3,000,000
Total	500,0000
Contingencies (10%)	500,000
Grand Total	**5,500,000**

The cost of the study, net of taxes and duties, and the indicative financing plan is presented in the adjacent table. It is expected that 95% of the study cost will be financed from Multilateral/Bilateral sources and the balance of 5% will be borne by the sponsors of the project.

6. **Study Implementation schedule:** The study will be implemented over 24 months after the consultant has been appointed. If funds are available in the 4th quarter of 2002, the consultant should be in place at the beginning of the 3rd quarter 2003 and complete the study by the end of the 3nd quarter 2005.

7. **Executing Agencies**: As the study involves a continent-wide study, it will be implemented with the involvement of the sub-regional organizations. Thus the DRC, CEMAC (central sub-region), EAC (east sub-region), ECOWAS (west sub-region), COMELEC (north sub-region) and SAPP (south sub-region) will form a Study Implementation Unit (SIU) to implement the study.

8. **Proposed Involvement of NEPAD:** NEPAD would play a facilitatory role in (a) bringing the RECs together to implement the study, and (b) mobilization of resources for the study. NEPAD would monitor the implementation of the study.

9. **Conclusions:** The potential of Grand Inga is about 40% of the present installed generation capacities in Africa. The proposed study is intended to investigate how, in the long-term, the Grand Inga hydropower potential could be developed to (a) integrate the power system interconnections of the sub-regions (central, east, west, north and south), and (b) strengthen the power exchange between the continent and Europe to enhance the north-south partnership. The study, therefore, deserves the full support of NEPAD.

DRC-ANGOLA-NAMIBIA (DRCANSA) INTERCONNECTION STUDY TERMS OF REFERENCE

1. **Introduction:** The DRCANSA study will investigate the feasibility of interconnection of the power systems of the Democratic Republic of Congo (DRC), Angola and Namibia, and transmitting hydropower from DRC and Angola via Namibia to South Africa. Specifically, the study will make an assessment on interconnecting: the existing Inga Power Station (DRC) with the northern grid (Angola); Northern grid with central and southern grids (Angola); and the Angolan grid with the Namibian grid.

2. **Background**: In 1998, the power utilities of the DRC, Angola, Namibia and South Africa carried out a 'Preliminary Technical Investigation' to determine the feasibility of linking Inga in the DRC and the three presently isolated systems in Angola to the Namibian Auas Substation near Windhoek (Namibia). The DRCANSA study was proposed as a possible alternative (Western Corridor) to the reinforcements to the Inga-Kolwezi HVDC and Kolwezei-Luano AC line (Eastern Corridor).

   The study investigated the various network options with different network configurations and routes and proposed the following hybrid AC and DC interconnection arrangement: Construction of a 400 kV AC network between Inga Hydropower Plant (DRC) and Luanda (northern grid Angola); Construction of a 220 kV AC network from Cambambe to Lomaum and Matala in Angola to link the three isolated systems together; Construction of a 3rd 220 kV line between Luanda and Cambambe; and Construction of a 500 kV HVDC line from Cambambe to Auas.

   This interconnector was found to be practical for transmitting 250 MW to Auas substation without additional control equipment added. However, with SVC arrangements at Cambambe and Auas substations, up to 450 MW power could be transmitted to Auas. The study indicated that 700-1,000 MW power could be imported thorough further reinforcement in the DRC, Angola and South African networks.

3. **Study Objective:** The objective of the study is to advance the preliminary study on DRCANSA carried out in July 1998 to feasibility level in order to assist in making investment decisions on the project. If implemented, the interconnector would serve as an alternative route to transfer hydropower/gas power from DRC and Angola to the Southern African Pool (SAPP) in general and South Africa in particular.

4. **Study Description**:

(h) **Technical Study:** The consultant will initially review the preliminary study undertaken in July 1998. He/she will then carry out a supply-demand analysis based on the generation expansion and demand forecast in each country to determine the level of power exchange through the interconnector. Specifically, the study will look into the possible utilization of flared gas in Angola for power generation to feed the interconnector.

The analysis will cover the period up to 2015. The study will then assess the possible line routes of the Power Transmission Line (PTL) in the Western Corridor and undertake network analysis (load flow and stability analyses) for the different supply schemes identified in order to verify the technical feasibility of each scheme. He will then carry out optimization studies and select the best scheme from a technical and economic point of view. The consultant will then compare the selected Western Corridor with the Eastern Corridor transmission network. The consultant will then carry out a detailed system study for the selected scheme.

(i) **Environmental Impact Assessment Study:** The study will also assess the environmental impacts of the project and recommend mitigating measures to minimize the negative impacts and enhance the positive impacts. Whenever possible the costs/benefits shall be valued in monetary values and considered in the investment and operational costs and subsequently in the financial and economic evaluations.

(j) **Cost Estimates and Sources of Financing:** The consultant will then prepare detailed cost estimates for the selected Interconnector Project. The project cost estimate will be prepared by work component (transmission line, substation, protection and communication, civil works environment and consultancy services) and will be broken down into foreign and local components. The cost estimates will show separately the physical and price contingencies. The consultant will identify and recommend possible financiers of the project and prepare an indicative financing plan.

(k) **Implementation schedule:** The consultant will then prepare an implementation schedule for the project. The implementation schedule will take into account the time required for sourcing of

financing, selection of consultants, preparation of tender documents, selection of contractors, manufacturing and installation of equipment.

(l) **Financial and Economic Evaluations:** The consultant will identify initially the benefit generated as a result of the interconnection. He/she will carry out financial evaluations and determine the Financial Internal Rate of Return (FIRR) and the Economic Internal Rate of Return (EIRR) of the project and determine the viability of the project.

(m) **Cooperation Agreement:** The consultant will prepare model agreements based on Rules and Standards established in the SAPP, experience on similar cooperation agreements, and results of discussions to be held with the four countries. The model agreements will include Power Purchase and Wheeling Agreements, Construction and Operation Agreements. The consultant will further propose a development strategy (public, private of public-private partnership) for the project.

(n) **Conclusions and Recommendations:** The consultant will finally make conclusions as to the feasibility of the project based on the findings of the various specific studies (technical, economic, social, other benefits, environmental and operation). If found feasible, he/she will then propose an action plan for the development of the project.

5. **Study Cost Estimate and Sources of Financing:** The cost of the study, net of taxes and duties, and the indicative financing plan is presented in the below.

Item	Total (US$)
Fees (40 mm @ US$15000/mm)	600,000
Reimbursables (perdiem, airfare, etc.	450,000
Total	1,050,000
Contingencies (10%)	105,000
Grand Total	**1,155,000**
It is expected that 95% of the study cost will be financed from Multilateral/ Bilateral sources and the balance of 5% will be borne by the sponsors of the project.	

6. **Study Implementation schedule:** The study will be implemented over 12 months after the consultant has been appointed. If the funds are available in the 4th quarter of 2002, the consultant should be in place at the beginning of the 3rd quarter 2003 and complete the study by the end of the 2nd quarter 2004.

7. **Executing Agencies**: The study will be jointly executed by the DRC, Angola, Namibia and South Africa, with the assistance of external consultants, and with financial assistance from multilateral/bilateral sources. It is expected that the power utilities of the four countries will form a Study Implementation Unit (SIU) composed of experts from each power utility to supervise the study closely.

8. **Involvement of NEPAD:** NEPAD would play a facilitatory role in (a) bringing the four countries together to implement the study, and (b) mobilization of resources for the study. NEPAD will monitor the implementation of the study.

9. **Conclusions:** The proposed study will investigate a possible alternative (Western Corridor) to the reinforcements Inga-Zambia (Eastern Corridor) to transmit the Inga surplus hydropower to the Southern Africa Power Pool (SAPP). The tie-line would also interconnect Angola to the SAPP and promote the utilization of the Angolan hydropower and natural gas potential for power generation. The study, therefore, deserves the full support of NEPAD.

NIGERIA-ALGERIA GAS PIPELINE STUDY
TERMS OF REFERENCE

1. **Introduction:** The proposed Nigeria-Algeria Gas Pipeline Study is intended to investigate the feasibility of wheeling Nigerian natural gas through the Algerian gas networks to Europe. The study will also investigate the feasibility of installing a fibre optics communication system between Nigeria and Algeria along with the pipeline. Furthermore, the study will investigate how the countries, through which the infrastructure will pass, would benefit from the project.

2. **Background:** Nigeria's natural gas reserves are estimated at 115 trillion cubic feet (TCF), which is one-third of the African continent's gas reserve, whilst the country consumes less than 1% of its reserves per annum. Nigeria produces abundant natural gas during the production of oil. Some of the gases produced are re-injected to boost oil production and the rest are flared due to lack demand in Nigeria and infrastructure to export to the neighboring countries. Currently Nigeria flares about 75% of the gas produced during oil production.

   At present a gas pipeline, the West African Pipeline (WAGP), is under construction to export the Nigerian natural gas to Benin, Togo and Ghana. The project is intended to export 130 million cubic feet of natural gas for power generation and direct utilization in the three countries. The front-end activities (various agreements and environmental study) are near finalization. With construction commencing in 2003, the completion of the project is targeted for the end of 2004.

   The idea of constructing a Nigeria-Algeria Gas Pipeline Project was conceived in the 1980s. Between 1980 and 1990, a number of preliminary studies were undertaken on the project. However, the project was not pursued until September 2001 when the governments of Nigeria and Algeria formed a Committee to undertake a feasibility study on the project. The proposed Nigeria-Algeria Gas Pipeline would, therefore, serve as the second outlet to pump the Nigerian natural gas to an additional demand centre.

3. **Study Objectives:** The objectives are to prepare a study to determine the technical feasibility and economic viability of constructing a pipeline to wheel gas through the Algerian gas network to Europe. The study will also investigate the feasibility of laying a fibre optic cable, along with the pipeline, to facilitate communications between Nigeria and Algeria. In addition the study will also investigate how the countries, through which the infrastructure will pass, would benefit from the project.

4. **Study Description**

a) **Technical Studies:** The consultant will initially review the preliminary study undertaken between 1980-1990. The consultant will then assess the possible line routes of gas/fibre optics cable using appropriate maps. He/she will then carry out preliminary surveys and preliminary cost estimates for the different routes identified in order select the best scheme from a technical and economic point of view. The consultant will then undertake detailed surveys, geo-technical and hydrological studies for the selected scheme. The consultant will also look into the alternative of exporting the Nigerian gas in the form of Liquefied Natural Gas (LNG) to Europe. He/she shall then carry out a comparative study and justify that the proposed project is the least cost option.

b) **Environmental Impact Assessment Study:** The study will also assess the environmental impacts of the project and recommend measures to minimize the negative impacts and enhance the positive impacts. Whenever possible the costs/benefits will be valued in monetary terms and considered in the investment and operational costs, and subsequently in the financial and economic evaluations.

c) **Cost Estimates:** The consultant will then prepare detailed cost estimates by work component separately for the gas pipeline and fibre optics communication system. The components firstly for the pipeline will include: laying of pipes, erection of booster stations, erection of tapping/terminal stations, and secondly for the fibre optics system will include: installation of the fibre optics cable, switching stations and SCADA system. The cost estimates will show the physical and price contingencies separately.

d) **Financial and Economic Evaluations:** The consultant will initially identify the benefit generated as a result of the interconnection. He/she will carry out financial evaluations and determine the Financial Internal Rate of Return (FIRR) and the Economic Internal Rate of Return (EIRR) of the project with/without the fibre optics system in order to determine the viability of the two options.

e) **Cooperation Agreement:** The consultant will identify and recommend a possible strategy for the development of the project and mechanisms

of financing. The project may be implemented by three project companies (Gas Production, Gas Transmission Company and Communication Company) formed with the participation of public and private sectors, with the major share held by the private sector. The consultant will prepare model agreements based on the experience of similar cooperation agreements. The model agreements will include a Concession Agreement, Power Purchase and Wheeling Agreements, and Construction and Operation Agreements.

f) **Conclusions and Recommendations:** The consultant will finally make conclusions as to the feasibility of the project based on the findings of the various specific studies (technical, economic, social, other benefits, environmental and operation). If found feasible, he/she will then propose an action plan for the development of the project.

5. **Study Cost Estimate and Sources of Financing**

Item	Total (US$)
Production	2,000,000
Transmission	3,000,000
Total	500,0000
Contingencies (10%)	500,000
Grand Total	**5,500,000**
The cost of the study, net of taxes and duties, and the indicative financing plan is presented in the adjacent table. It is expected that 95% of the study cost will be financed from Multilateral/Private Sector sources and the balance of 5% will be borne by the sponsors of the project.	

6. **Study Implementation schedule:** The study will be implemented over 24 months after the consultant has been appointed. If funds are available in the 4th quarter of 2002, the consultant should be in place at the beginning of the 3rd quarter 2003 and complete the study by the end of the 3rd quarter 2005.

7. **Executing Agencies**: The study will be executed jointly by the governments of Nigeria and Algeria, with the assistance of external consultants. A Protocol Agreement will have to be signed between the two governments for undertaking the study, which is normally a prerequisite for securing financing for the study. It is expected that the power utilities of the two countries will form a Study Implementation Unit (SIU) composed of experts from each power utility to closely supervise the study.

8. **Involvement of NEPAD:** NEPAD would facilitate that the four countries come together to implement the study. Furthermore, NEPAD should assist in the mobilization of resources for the study and monitor the implementation of the study.

9. **Conclusions:** The proposed study will investigate the feasibility of exporting Nigerian natural gas, which would otherwise have been flared, to Europe to enhance north-south partnerships. It will also investigate the possibility of supplying the natural gas to countries along the route and the installation of modern communication systems between West Africa and North Africa. The study, therefore, deserves the full support of NEPAD.

MASTER PLAN FOR SUB-REGIONAL INTERCONNECTIONS (EAST, WEST & CENTRAL)
TERMS OF REFERENCE

1) **Introduction:** These Terms of Reference (TOR) are a summary of the detailed TORs compiled separately for the preparation of interconnection Master Plan studies for the East, West and Central African sub-regions.

The Master Plan for the East African sub-region (EASR) Interconnection is intended to investigate the feasibility of interconnection and/or strengthening of the existing interconnections of power systems of countries in EASR. The countries include Kenya, Tanzania, Uganda, Ethiopia, Sudan, Djibouti, Eritrea and Somalia.

The Master Plan for the West African sub-region (WASR) Interconnection is intended to investigate the feasibility of interconnection and/or strengthening the existing interconnections of power systems of countries in the WASR. The power systems interconnections in WASR can be grouped as (a) Western Zone: Niger, Nigeria, Benin, Togo, Ghana, Côte d'Ivoire, Burkina Faso, (b) OMVS: Mali, Senegal and Mauritania, (c) OMVG: Gambia, Guinea, Guinea Bissau, and Senegal, and (d) MRU: Guinea, Liberia, Sierra Leone.

The Master Plan for the Central African sub-region (CASR) Interconnection is intended to investigate the feasibility of interconnection and/or strengthening the existing interconnections of power systems between countries in the CASR. The countries include Angola, Burundi, Cameroon, Chad, Central African Republic (CAR), Congo, Democratic Republic of Congo (DRC), Equatorial Guinea, Gabon and Rwanda.

The study will assess the potential for the interconnection of the countries in each sub-region and recommend least cost sub-regional interconnection options at Master Plan level. The study will further make an assessment on the interconnection between two countries or/and group of counties, as appropriate. The study will look into the interconnection between countries within as well as outside the sub-region, as appropriate. The study will further prepare a Plan of Action for the implementation of the interconnections.

2) **Background**: Energy resources in the sub-regions are characterised by an abundance of energy resources in some countries and scarcity in others. Whilst each sub-region as a whole has abundant energy potential, the energy sector in individual countries is amongst the least developed. There is potential for strengthening the power systems within individual countries and between the countries, leading to the establishment of an East African Power Pool (EAPP), Western African Power Pool (WAPP) and Central African Power Pool (CAPP) along the lines of the Southern African Power Pool (SAPP).

3) **Electricity Master Plan Objectives:** The objective of the Electricity Master Plan is to set, in stages, the conditions necessary to optimise energy resource utilisation, harmonise national energy development plans through interconnection of electric power systems and to ensure security of energy supply to Member States in the EASR, WASR and CASR.

4) **Description of the Master Plan**

a) **Technical Study:** The Master Plan will be prepared separately for EASR, WASR and CASR. The consultant shall review data and information on electricity demand and power generation and supplies for the countries and carry out a market survey and assessment of demand forecasts as well as generation expansion programs for each country and for the sub-region. He/she shall evaluate the desired power exchange between the respective countries and the potential for strengthening power systems within individual countries and between the countries, through network analyses, leading to the establishment of a Power Pool. He/she shall perform his/her analyses on the basis of the network development plan of each country. In this exercise, he/she shall review the various relevant studies undertaken.

b) Specifically, the consultant shall: make an assessment of the existing and future energy demand in respective countries of the sub-region and evaluate the quantity of energy required to meet the assessed demand; identify the various interconnection options and carry out comparative studies (technical and financial) to determine the least cost interconnection options; assess the suitability of electricity interconnection between the countries within the sub-region and from outside the sub-region to maximise the utilisation of energy in the sub-region in the least cost possible way; prepare the technical description and costs by component for the recommended interconnection options; and prepare a Plan of Action for the implementation of the recommended sub-regional interconnections.

c) **Environmental Impact Assessment Study:** The study will assess the environmental impacts of

the proposed tie-lines and sub-stations associated with interconnections, and recommend mitigating measures for the negative impacts, whilst highlighting the benefits that would accrue from positive impacts. Whenever possible the cost/benefits shall be valued in monetary terms and considered in the investment and operational costs and finally in the viability of evaluation of the selected interconnections.

d) **Cost Estimates and Sources of Financing:** The consultant shall prepare detailed cost estimates for the overall Electricity Master Plan by type of work. He/she shall further prepare the cost estimates for the interconnection between two countries and/or groups of countries, as appropriate. The consultant shall also prepare detailed cost estimates for the implementation framework for the Power Pool, and for institutional as well as capacity building or strengthening and training for the development and implementation of the Power Pool. The project cost estimates shall be prepared by work component and be broken down into foreign and local costs. The cost estimates shall also show separately the physical and price contingencies. The consultant shall identify and recommend possible financiers of the project and prepare an indicative financing plan.

e) **Implementation Schedule:** The consultant shall prepare an implementation schedule for the project. The implementation schedule will take into account the time required for the sourcing of financing, selection of consultants, preparation of tender documents, selection of contractors, manufacturing and installation equipment and putting into place a framework for the implementation of Power Pools.

f) **Financial and Economic Evaluations:** The consultant shall identify the benefits that would accrue from the implementation of the interconnections and the Master Plan. He/she shall make an assessment on the financial and economic viability separately for the overall interconnection, the interconnection between two countries and group of countries, as appropriate.

g) **Institutional Study:** The consultant shall assess requirements for energy reforms, institutional as well as capacity building or strengthening and training for the development and implementation of the Power Pool. The consultant will also prepare modalities for the implementation framework for the Power Pool to facilitate and coordinate transactions in the electricity sub-sector, along the lines of the SAPP and the proposed Power Pool. Emphasis will be placed on cost saving, efficiency of production, transfer and use, on sharing of reserves, uninterrupted supply, centralised technical co-ordination, and common energy development and exploitation programs.

h) **Cooperation Agreement and Development Strategy:** The consultant shall draft a Memorandum of Understanding (MOU) to set out legal and regulatory bases for the development and implementation of energy exchange among the Member States of each sub-region. Furthermore, he/she shall prepare MOUs specifying the framework for co-operation between electricity companies, Power Purchase and Wheeling Agreements as well as Construction and Operation Agreements. He/she will also propose a development strategy (public, private sector or public/private sector partnerships) for the project.

i) **Conclusions and Recommendations:** The consultant shall finally make conclusions on the feasibility of the interconnection project on the basis of the finding of various specific studies (technical, economic, financial, environmental and others). If found feasible, the consultant shall propose an Action Plan for the development of the project. The Action Plan should prioritise the project by country or/and group of countries on the basis of attractiveness of the package for funding.

j) **Organisation of a workshop:** The consultants shall organise a workshop for experts in energy and representatives from Governments, electricity utilities as well as organisations from the sub-region to review and comment on the results of the study and adopt/approve the Master Plan.

5) **Study Cost Estimates and Sources of Financing:** The cost of the study, net of taxes and duties, is presented in the table below. It is envisaged that 95% of the study cost will be financed from multilateral/bilateral sources and the remaining 5% borne by sponsors of the project.

Item	East	Western	Central	Total (US$)
Consultancy Fees	1,890,000	1,350,000	1,890,000	**5,130,000**
Per Diem	220,500	157,500	220,500	**598,500**
Airfares	175,000	125,000	175,000	**475,000**
Support Services	350,000	250,000	350,000	**950,000**
Logistical Support	910,000	650,000	910,000	**2,470,000**
TOTAL	3,545,500	2,532,500	3,545,500	**9,623,500**
Contingency (10%)	354,550	253,250	354,550	**962,350**
Grand Total	**3,900,050**	**2,785,750**	**3,900,050**	**10,585,850**

6) **Study Implementation Schedule:** Each sub-regional Master Plan will be prepared over a period of 24 months after the consultant is appointed. The consultant will be in place at the

beginning of the 3rd quarter of 2003 and complete the study by the end of the 3rd quarter of 2005.

7) **Executing Agencies:** It is envisaged that Study Implementation Unit (SIU) headed by the sub-regional organisation and with members from the power utilities of the sub-region will be established to implement the study. IGAD/COMESA, ECOWAS and CEMAC/ECCAS, respectively, will be the Executing Agencies in the East, West and Central sub-regions. The SIU will be assisted by external consultants, which will be financed from multilateral/bilateral sources.

8) **Involvement of NEPAD:** NEPAD would facilitate (a) the conclusion of a protocol agreement to implement the study for countries in the sub-region, and (b) the mobilisation of resources for the study. NEPAD will also monitor the implementation of the study.

9) **Conclusions:** The medium-term strategy of the Energy Infrastructure Program is to complete the sub-regional interconnections in the medium-term as building blocks for long-term intra-African power systems integration. The proposed study will, therefore, investigate and propose the least cost options for completing, in the medium-term, the interconnections in the East, West and Central sub-regions. The study, therefore, deserves the full support of NEPAD.

CAPACITY BUILDING PROJECT TERMS OF REFERENCE

1) **Introduction:** These Terms of Reference (TOR) are a summary of detailed TORs contained in Working Papers prepared for the separate projects under the headings: (a) Capacity Building in African Regional and Sub-regional Organizations - operationalization of the African Energy Commission (AFREC) and institutional building in the Regional Communities (RECs); (b) establishment of an African Energy Information System, Energy Database Centre, and operationalization, dissemination and use of the African Energy Program's (AEP) Planning Tools; and (c) Training of Energy Experts.

   Firstly, the project is intended to operationalise AFREC through ratification of the Convention and appointment of the Board and advisory body. The project would provide technical support to build institutional capacity in the energy sector in AFREC and sub-regional organisations in Africa to enable them discharge their mandates in the energy sector.

   Secondly, there is a widespread lack of reliable energy data and adequate, up-to date energy planning tools in Africa, which is a serious impediment to policy formulation, planning, identification of opportunities and investment. No one organisation is adequately covering African energy information. There is thus a need to develop and adopt a rationalised collaborative approach to reduce duplication in the collection and dissemination of energy data and use effective energy planning tools. The project would thus refine and operationalize the Integrated Planning Tools (Information System, Accounting Model and Forecasting Model) developed by the African Development Bank (AfDB) in the context of African energy situation.

   Thirdly, training is a key element in developing Africa's energy sector. Training should be in all aspects of energy – energy planning, engineering, managerial capacity, in education, in information collection, analysis, management and dissemination. The project will identify the sub-regional centres of excellence and propose how these centres could be strengthened and used for training in different disciplines at the continent level.

2) **Background:** The 37th OAU Assembly of Heads of State and Government in Lusaka, Zambia in July 2001 decided to adopt the Convention of AFREC. To date very few countries have ratified the Convention. The Board and the Technical Advisory Body have not been put in place and the Secretariat at Algeria is meagrely staffed. To discharge its mandate, it is necessary that AFREC be operationalized as stipulated in the Convention and its capacity strengthened. There is also a need to build capacity within the RECs, specifically as regards energy policy formulation, institutions, management and planning.

   Furthermore, there is a need to align these RECs so that they complement AFREC. Moreover, mechanisms are needed to ensure coherence, reduce duplication, rationalise structures, and harmonise energy policies and programs.

   The energy industry operates on a long-term basis and the present level of demand and supply are results of decisions taken decades ago. Consequently, wrong decisions made on either the formulation of energy policy decisions or investments would affect the energy supply/demand situation at a later time, which would result in either energy supply deficit or over-investment. It is, therefore, necessary to develop policies and planning capacity at all levels (countries, RECs) for drawing up realistic energy sector investment plans to ensure that demand always matches supply in providing energy services.

   The AfDB's African Energy Program (AEP) Integrated Energy Planning Tools, which have been designed in the context of the African energy, would be valuable to African countries and the RECs. There is a need to operationalize these tools, up-date them taking into account recent initiatives, and disseminate them to RECs and African countries.

   The lack of skilled, well-trained human resources, especially in policy formulation and planning, is a major constraint in the development of policies/strategies and plans in the energy sector. Moreover, training has tended to be viewed from the perspective of supply and rarely from that of demand, which is a weakness that should be addressed, in order to ensure the optimal functioning of the energy system through efficient management of both levels.

3) **Project Objectives and Benefits:** The objectives of regional and sub-regional capacity building are to operationalize AFREC and strengthen the capacities of the RECs. Institutional and managerial capacity will be built in AFREC enabling it to implement the activities specified in the Convention. The project will also develop institutional and managerial capacity in RECs to

help them plan and implement regional programs. The project will assist AFREC and the RECs to discharge their responsibilities to promote the development of the African energy sector at the regional and sub-regional levels.

The objective of establishing an African Energy Information System, Energy Database Centre, and operationalizing/disseminating the AEP's Planning Tools is to enable an effective development of capacity to plan, formulate and implement energy programs through the management of data/information and knowledge at regional and sub-regional levels.

The objective of the training assessment is to generate proposals for training African energy experts using existing sub-regional Energy Training Institutions or other centres of excellence. The assessment will identify the sub-regional training institutions or other centres of excellence by discipline and make proposals on how the centres would be strengthened and used for continent-wide training.

4) **Project Description**

a) **Capacity Building**

Operationalization of AFREC: The project will operationalize AFREC through ratification of the Convention, establishing the Board and Technical Advisory Body, staffing of the Secretariat and providing technical support. Specifically, it would expedite the ratification of the AFREC Convention by the required number of countries; expedite appointments to the AFREC Board and the Technical Advisory Body; put in place an initial structure, including a Director, experts for information/data bank, planning/economic studies and technical projects as well as administrative/secretarial support; and provide all necessary external technical support to make the AFREC Secretariat fully functional.

Capacity Building in RECs: The project will provide technical support to strengthen the institutional capacity in ECOWAS/UEMOA, COMESA, SADC, UMA and ECCAS/CEMAC. The project would establish an institutional framework to initiate and coordinate energy sector policies within the RECs and link them with AFREC's functions. The project would assist in the building of capacity in RECs to enable them effectively to perform their functions and mandates in the field of energy; and put in place strategies and mechanisms to align the RECs so that they complement AFREC and ensure coherence, reduce duplication, and better coordinate, harmonise, monitor and implement energy policies and programs within their respective sub-regions.

b) **Establishment of Energy Information System, Database Centre and Operationalization of AEP's Energy Planning Tools**: The Integrated Energy Planning Tools developed by the AfDB would be updated taking into account the various initiatives on African Energy Information Systems. The consultant shall develop a proposal in this regard for review at a workshop before its dissemination for use. This would ensure a participative approach and harmonise efforts, avoid duplication, and obtain input and consensus on the Energy Planning Tools for Africa.

As an integral part of the abovementioned process, an African Energy Database Centre, which would be internationally recognised and appropriate for Africa, would be established at the levels of AFREC and the RECs. The RECs would subsequently assist in replicating the Database Centres in the countries to ensure sound data collection for the continent using a rationalised, collaborative approach. It is expected that the Database Centre would make use of the software developed for the Integrated Planning Tools, or as appropriately enhanced.

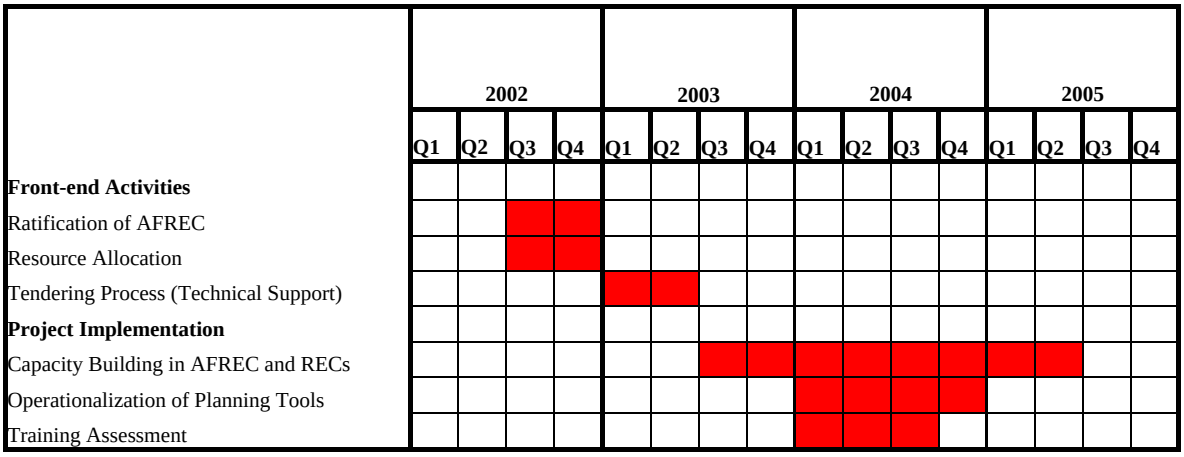
The updated Planning Tools would be operationalized using appropriate data, and disseminated to AFREC, RECs and countries. The project envisages holding 5 sub-regional workshops to train AFREC, RECs and country experts in the Planning Tools. In addition to assisting in the workshops, the experts appointed will provide training services for a period of two years.

c) **Training of Energy Experts**: The assessment would review existing regional/sub-regional energy training institutions and the present level of training, including the work done during the AfDB's AEP on the same topic. These would serve as inputs for a draft position paper to formulate a strategy for addressing the human capacity constraints in Africa in terms of the study objectives. A workshop inviting relevant training experts and organisations in Africa's energy scene will be organized to provide input to the final proposal. A consultant would determine the kind of assistance required by regional and sub-regional institutions in order for them to become regional centres of excellence, with the capacity to train the continent's human resources.

5) **Project Cost and Sources of Finance:** The cost of the project, net of duties and taxes, is presented in the table below. It is broken down into (a) building of capacity in the regional and sub-regional institutions; (b) establishment of an African energy information system, energy database centre, as well as operationalization, dissemination and use of the AEP's Integrated Energy Planning Tools; and (c) producing proposals for using existing African centres of excellence to train energy experts. It is expected that the project cost will be financed from multilateral/ bilateral sources**.**

Item	Capacity Building	Info System & Planning Tools	Training	Total (US$)
Consultancy Fees	2,592,000	540,000	216,000	**3,348,000**
Per Diem	594,000	81,000	36,000	**711,000**
Airfares	120,000	25,000	35,000	**180,000**
Workshops	0	225,000	45,000	**270,000**
Support Services	0	100,000	100,000	**200,000**
Logistical Support	1,620,000	100,000	50,000	**1,770,000**
TOTAL	4,926,000	1,071,000	482,000	**6,479,000**
Contingency (10%)	492,600	107,100	48,200	**647,900**
Grand Total	**5,418,600**	**1,178,100**	**530,200**	**7,126,900**

6) **Project Implementation Schedule**: The project will be implemented between 2003 and 2005, given that AFREC is operationalized by end 2003 and funding for the project is secured by end 2002. The implementation of the project will commence by beginning of 2003 and be completed by mid 2005. The implementation schedule in chart form is shown below.



7) **Executing Agencies:** The project will be implemented by AFREC and sub-regional organizations (ECOWAS/UEMOA, COMESA, SADC, UMA and ECCAS/CEMAC). Specifically, AFREC will implement the Energy Information System/Planning Tools and Training sub-projects in line with its mandate.

8) **Involvement of NEPAD:** NEPAD would assist in the operationalisation of AFREC through the ratification of the Convention and putting into place the Supervisory and Advisory Bodies. Furthermore, NEPAD would assist in the mobilization of resources for the project and would monitor the implementation of the project. AFREC will implement the Capacity Building and Facilitation Projects, which are continent-wide projects. The operationalisation of AFREC would, therefore, be a priority area of NEPAD's intervention.

9) **Conclusions**: Operationalisation of AFREC and availability of institutional capacity in the RECs is critical for regional policy/strategy formulation and planning. Therefore, the proposed project will operationalise AFREC and build capacity in RECs to discharge their mandates. The capacity building will be done through providing technical assistance, equipping AFREC and RECs with energy planning tools. Training of energy experts using the existing sub-regional training centres and other centres of excellence will be investigated. The project, therefore, deserves the full support of NEPAD.

FACILITATION PROJECT
TERMS OF REFERENCE

1. **Introduction:** These Terms of Reference (TOR) are a summary of detailed TORs contained in Working Papers prepared for the separate sub-projects indicated in (a) to (f) below. The Facilitation Project, which deals with continental issues, includes (a) preparation and adoption of Policies and Strategies; (b) preparation and adoption of a Protocol on Energy (dealing with Institutional, Legal and Regulatory Frameworks; (c) assessment to generate proposals for cooperation in New and Renewable Sources of Energy (NRSEs); (d) assessment to generate proposals for cooperation on Improving Energy Efficiency and Reliability of Energy Supply; (e) assessment to generate proposals on Cooperation in Oil/Gas Trade, Procurement, Refining/Processing and Distribution at the sub-regional level; and (f) assessment to generate proposals on Cooperation in Rural Energy in the African Energy Sector.

   There is an urgent need for the development and adoption of coherent energy policies and strategies at the continental level to advance regional cooperation. A principal function of the African Energy Commission (AFREC), the Convention of which was adopted by the African Heads of State and Government in Lusaka, Zambia in July 2001, includes the launching of continent-wide energy development policies, strategies and plans. Under the initiative, continent-wide policies and strategies will be prepared under the auspices of AFREC.

   The lack of a common African institutional energy framework is a major handicap for regional energy integration. At the global level, formulation, analysis and overall energy planning for Africa are dominated by internal and external international institutions. Regional integration in the field of energy in Africa has not been successful. Unreliable energy statistics have created difficulties in regional and sub-regional evaluations. The adoption of the proposed Protocol on Energy would provide a framework for cooperation to advance the optimal development and use of Africa's energy resources and attract investment for sector development.

   Africa has huge potential in renewable energy resources. The main challenge lies in the development, utilization and dissemination of renewable energy technologies on a scale wide enough to contribute significantly to energy for sustainable development, particularly in rural areas. Despite some progress in promoting renewable energy applications in recent years numerous constraints, such as advances in technology, high costs and market barriers, continue to exist. The proposed NRSEs Assessment would advance continent-wide cooperation to address the barriers and constraints indicated above and promote the development of renewable energy.

   There is an urgent need to improve energy efficiency in Africa and to improve reliability and lower the cost of energy supply to productive activities thus making them more competitive. Enormous opportunities exist for implementing energy efficiency in Africa. However, many African countries have yet to take advantage of energy efficiency measures, due largely to lack of policies, lack of information and inadequate programmes as well as market barriers. African countries are also lagging behind in the development and putting in place of strategies for ensuring reliability of energy supplies. It is necessary to improve reliability and lower the cost of energy supply to productive activities thus making them more competitive. These issues and problems need to be addressed at the sub-regional and regional levels and the proposed Energy and Reliability Assessment would contribute to this end**.**

   Although hydrocarbon consumption of Africa is low, the hydrocarbon energy bill takes a good part of export earnings of non-oil producing countries in Africa. Trade and cooperation among African countries in oil and gas is limited and yet there are significant opportunities in this sphere. Intra-African trade and cooperation in oil/gas procurement and utilization would, inter alia, reduce inefficiencies in petroleum product procurement, refining/processing and distribution and thereby provide significant financial benefits for Africa. The rationalisation of African refining/processing and distribution is today of critical importance when putting in place a policy of regional energy integration. The proposed assessment would promote intra-African oil/gas trade and cooperation in gas/oil procurement and utilization.

   Energy has a vital role to play in meeting basic needs of the rural population and in improving the standard of living in the rural areas and, therefore, in enhancing general

rural development, which in turn plays a major role in poverty reduction. At the present time the rural areas of most of Africa have inadequate access to energy services. There is, therefore, a compelling need to improve access to modern energy services to rural areas in Africa where the bulk of the population lives. Given the extent of wood-fuel use in Africa, it is critically important to move towards more sustainable biomass use, whilst at the same time utilising a diversity of commercial energy supplies and technologies. There is, furthermore, a pressing need for African countries to develop and implement integrated national programs and cooperate in the development and implementation of energy systems in rural areas. The proposed Rural Energy Assessment would further cooperation at sub-regional and continental levels to advance rural energy services.

2. **Background:** Development of policies and strategies for African energy development has been of interest to African leaders for a long time. The Lagos Plan of Action (1980) identified energy as important for development and stated the need to work out policies and strategies for energy development in the continent. In the recent past a number of initiatives, including the African Energy Program (AEP) of the African Development Bank (AfDB), have been undertaken towards the development and adoption of policies and strategies for the African energy sector at continent level.

In the AEP a comprehensive study was prepared on energy in Africa and recommendations made to further regional cooperation. However, the initiatives have not lived up to expectations such as implementation of energy policies and strategies for Africa. AFREC would play a critical role in the development and adoption of coherent energy policies and strategies and in enhancing regional cooperation.

The Treaty Establishing the African Economic Community (Abuja 1991) called on Member States to cooperate in accordance with the provisions of a Protocol on Energy and Natural Resources. Meanwhile, AEP (1992-95) recommended the preparation and adoption of a continent-wide legal framework consisting of an African Energy Charter. An Energy Experts Meeting in May 2000 on the establishment of the AFREC identified the preparation of a Protocol on Energy as one of the four initial activities for implementation by AFREC. A draft Protocol on Energy has been prepared by the OAU/AEC General Secretariat. The review, completion, adoption and operationalisation of the Protocol would promote partnerships in the development of energy resources.

Africa has considerable NRSEs. However, the level of development of NRSEs on the African continent is relatively low. Many renewable energy projects have been undertaken in rural environments, and have already played a very positive part in rural development. The need to increase the share of renewable energy sources of energy in the overall energy mix has been the subject of many international forums, which have also identified required actions to achieve this objective. A number of sub-regional/regional institutions as well as research organisations at national level have been established to promote capacity in, and use of, NRSEs in Africa. The initiative would enable the harmonization of the various efforts towards the development of renewable energy resources to meet energy requirements, particularly in rural areas.

Energy efficiency has an important role to play in accelerating the development of energy supply to low-income households. Governments are also urged to improve the reliability of supply and lower the cost of energy supply to stimulate economic growth. In past decades, energy intensity in Africa has increased whilst during the same period there has been a decline of world average energy intensity. Energy supply and end-use efficiencies are still relatively low. In the past, initiatives have been taken by certain utilities, governments or sub-regions - for example, SADC's Industrial Energy Management Program (SIEMP) or Eskom's demand-side management and plant availability/reliability approaches. But these have been scattered and not harmonized at the regional level and there is still a long way to go to achieve the desired levels of energy efficiency and reliability of supply. In formulating integrated energy strategies, governments have been urged to review both supply- and demand-side options and set priorities that address major impediments to improving the efficiency with which energy is produced and consumed. A continent-wide assessment will facilitate the addressing of these issues and problems.

Despite vast opportunities for potentially huge benefits, there is little regional cooperation and trade between African countries in oil and gas. Energy supply to numerous African

countries often depends massively on oil products. For strategic rather than economic reasons, many countries have built refineries, some of them with very low capacity. There is a proliferation of identical equipment in numerous countries, at times oversized and thus under-utilised, with little thought of integration, coherent strategy and prior consultation between neighbours. A study conducted in 1993 showed that Sub-Saharan African countries can reduce the cost of hydrocarbon imports through integrated procurement of petroleum products and reducing inefficiencies in the utilisation of refineries. The study further revealed that through sub-regional co-operation in petroleum product procurement, refining and distribution, annual potential savings estimated at over US$1.4 billion were possible in Sub-Saharan Africa. This is an area that requires priority attention by African leaders and decision makers.

Most of today's 2 billion people without adequate energy services are in rural areas, and many of these are in Africa. The rural areas of Africa are characterised by a heavy dependency on biomass, and commercial energy consumption, which is too low, decentralised and dispersed. Making modern energy services more readily available is an important step in rural development. Efforts to find the most appropriate solutions to the energy problems of rural areas are hampered by the enormity of the problem, limited availability of resources and lack of appropriate technologies, high investment cost and connection fees, affordability as well as insufficient attention to rural development in general. The assessment would assist in promoting the provision of energy services to rural areas and in the management of traditional energy use.

3. **Project Objectives and Benefits:** The objective of the policies and strategies initiative is to formulate and adopt continent-wide energy policy and strategy frameworks in order to further regional cooperation for effective development and use of Africa’s energy resources. The continent has abundant energy resources but it is characterised by uneven distribution of the resources and of needs. Given that national needs are often too small to justify the full development of energy resources, suitable policies and strategies would enhance integrated development of the continent’s energy resources to match supply with demand.

The objective of the Protocol on Energy initiative is to put in place legal and regulatory frameworks to promote regional cooperation for integrated development and utilization of the African energy resources. This will facilitate the mobilization of financing for the sector development.

The objective of the NRSEs initiative is to generate proposals for co-operation among RECs, African nations as well as multilateral and other organisations to further the development and use of NRSEs in Africa. Developing and utilising NRSEs to their full potential will help to facilitate sustainable development for large numbers of people on the continent, in particular in rural areas.

The objective of the efficiency and reliability assessment is to generate proposals for cooperation among RECs and countries that will enhance energy efficiency, improve reliability and lower the cost of energy supply in Africa's energy sector. Greater energy efficiency and optimum utilisation of plant assets will help to maintain secure energy supplies and bring national economic benefits through reduced dependence on imported fuels and increased industrial competitiveness, apart from having significant environmental benefits. Investments would also be able to be deferred by these means.

The objective of the oil/gas cooperation assessment is to generate proposals and formulate strategies for intra-African oil/gas trade, sub-regional cooperation in procurement, and optimum utilisation of refineries and distribution. Reducing inefficiencies in petroleum product procurement, refining and distribution will have very significant financial benefits for Africa.

The objective of the rural energy assessment is to generate proposals for cooperation among RECs, among African nations and organisations in the developed/developing world regarding furthering rural energy development in Africa. This will contribute to effective implementation of improved energy services for sustainable rural development and lead to significant improvements in the quality of life for Africa's rural population.

4. **Project Description:** A review will be undertaken of the various initiatives undertaken towards formulating and adopting policies and strategies for the African energy sector. Policy and strategy recommendations

made by the AEP will be assessed and a 'Policy and Strategy for African Energy Development' prepared. These would serve as inputs for drafting a 'Policy and Strategy for African Energy Development'. Workshops inviting experts and relevant organisations involved in the African energy scene will be organised to deliberate on the paper and make recommendations for its adoption by African Energy Ministers.

In the Protocol project, the text of the draft Protocol on Energy and Natural Resources (prepared by the OAU) will be examined in-depth and a Protocol on Energy, which deals with legal, institutional and regulatory frameworks, and standards, will be prepared and adopted. Workshops inviting experts and relevant organisations involved in the African energy scene will be organised to deliberate on the draft paper and make recommendations for its adoption by African Energy Ministers.

The assessment on NRSEs will include a review of initiatives and programs in this area within African regional/sub-regional energy organisations, countries as well as relevant regional and international initiatives (including the G8 initiative), that may support NRSEs development and use in Africa. These would serve as inputs for a draft position paper to formulate a strategy for faster development and widespread use of renewable energy and technologies in Africa.

A workshop for renewable energy experts, practitioners as well as organisations involved or interested in the development and use of NRSEs in Africa will be organized to provide input to the final proposal on NRSEs for adoption.

The efficiency and reliability assessment will include a review within African countries, sub-regions and the region of existing activities that could be valuable in improving energy efficiency as well as reliability and lowering the cost of energy supply in Africa's energy sector. This would serve as an input for a draft position paper to formulate a strategy for Africa in terms of the study objectives. Workshops will be organised to provide input to the final proposal on energy efficiency and reliability for adoption. These will enable relevant energy efficiency and plant/system reliability experts and practitioners in Africa and the rest of the world to contribute to the realisation of the study.

The oil/gas cooperation assessment will review existing intra-African oil/gas trade and the extent of sub-regional cooperation in petroleum product procurement, joint utilisation of refineries, and distribution aspects. These would serve as inputs for a draft position paper to establish modalities for promoting cooperation in this regard. A workshop inviting relevant organisations involved in African oil/gas energy trade will be organised to provide input to the final proposal on intra African oil/gas trade and cooperation in procurement and utilization of oil/gas.

The rural energy assessment will review the rural energy programmes within African regional/sub-regional energy organisations, within African countries as well as relevant regional and international initiatives, which may support rural energy development in Africa. These would serve as inputs for a draft position paper to formulate a strategy for rural energy in Africa. A workshop inviting relevant rural energy experts and practitioners and organisations which are able to contribute to developing rural energy in Africa will be organised to provide input to the final proposal on rural energy development strategy at the continental level.

5. **Project Cost and Sources of Finance**: The cost of the facilitation project, net of taxes and duties, is presented in the table below. It is expected that the project cost will be financed from Multilateral/ Bilateral sources.

Item	Policies & Protocol	NRSE	Efficiency	Oil/gas	Rural	Total
	Estimated Costs US$ ('000)					
Consultancy Fees	**252**	**216**	**216**	**216**	**216**	1,116
Per Diem	**36**	**36**	**36**	**36**	**36**	180
Airfares	**60**	**35**	**35**	**35**	**35**	200
Workshops	**225**	**45**	**45**	**45**	**45**	405
Support Services	**100**	**100**	**100**	**100**	**100**	500
Logistical Support	**100**	**50**	**50**	**50**	**50**	300
Total	**773**	**482**	**482**	**482**	**482**	2,701
Contingency (10%)	**77.3**	**48.2**	**48.2**	**48.2**	**48.2**	270.1
Grand Total	850.3	530.2	530.2	530.2	530.2	2,971.1

6. **Executing Agencies**: The project will be implemented by AFREC with close involvement of the RECs, UNECA, OAU and AfDB. It is imperative to operationalise AFREC to implement the project.

7. **Implementation schedule:** The project will be implemented between 2003 and 2005, given that AFREC is operationalized by end

2003 and funding for the project is secured by end 2002. The implementation of the project will commence by beginning of 2003 and be completed by mid 2005. The implementation schedule in chart form is shown below.

AFREC will implement both the Capacity Building and Facilitation Projects. As the capacity of AFREC to implement projects the short-term will be limited, the proposed projects will have to be undertaken on a priority basis. It is, therefore, proposed that (a) preparation and adoption of policies/strategies, the Energy Protocol, and the oil/gas cooperation project are implemented in the first phase, and (b) the remaining projects in the second phase.

8. **Involvement of NEPAD:** Initially, NEPAD would assist in mobilization of funds for the project and in monitoring the implementation of the project. NEPAD would also assist in operationalising AFREC to implement the project. NEPAD would also help in the adoption and/or implementation of the recommendations on the various initiatives.

9. **Conclusions**: The Facilitation Project is intended to put in place appropriate policies/strategies, legal and institutional frameworks, to promote regional cooperation and public-private partnership. Given that the Facilitation Project will be implemented under the auspices of AFREC, priority will have to be given to operationalise and strengthen AFREC.

	2002				2003				2004				2005			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Front-end Activities																
Ratification of AFREC																
Resource Allocation																
Tendering Process (Technical Support)																
Project Implementation																
Preparation and Adoption of Policies																
Preparation and Adoption of Energy Protocol																
Proposal on Cooperation in Oil/Gas																
Assessment on Rural Energy Cooperation																
Assessment on NRSEs Cooperation																
Assessment on Energy Efficiency/Reliability																
Cooperation																

APPENDIX 3

PROJECT PROFILES
WATER AND SANITATION SECTOR

WATER RESOURCE PLANNING AND MANAGEMENT – NILE BASIN

1. **Project Name and Location:** The project is entitled the Water Resource Planning and Management – Nile Basin and will be implemented in the 10 countries participating in the Nile Basin Initiative (NBI): Burundi, Democratic Republic of Congo (DRC), Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda.

2. **Sponsor(s):** All ten NBI countries sponsor the project.

3. **Current Status**: The Project document was prepared in March 2001 and funding has been secured for US$ 20.0 million out of total project cost of US$ 28.2 million. Project launching and preparatory work for implementation is underway.

4. **Background:** Having been aware that cooperation requires a development focus, a permanent institution, and agreement on core legal principles, the Nile riparian countries initiated a forum to facilitate a process of legal and institutional dialogue in 1997. A draft text of a "Cooperative Framework" was prepared in 2000, and dialogue on outstanding issues is continuing.

   While the legal and institutional dialogue continues, the Nile riparian countries established in 1999, the Nile Basin Initiative (NBI), as a transitional institutional mechanism that includes all riparian countries and provides an agreed basin-wide framework and a shared vision to fight poverty and promote economic development in the region. The NBI is comprised of a Council of Ministers of Water Affairs, of the Nile Basin (Nile-Com), a Technical Advisory Committee (Nile- TAC), and a Secretariat (Nile-SEC) located in Entebbe, Uganda.

   To translate the shared vision into action, a strategic action program has been launched to identify and prepare cooperative projects in the Basin. The program consists of two complementary sub-programs: a Shared Vision Program (SVP) of technical assistance and capacity building type projects to be implemented basin-wide to create an enabling environment for cooperative development and Subsidiary Action Programs (SAPs) carried out by smaller groups of riparians, comprising physical investments at the sub-basin level.

   The basin-wide SVP currently includes seven projects, of which four are thematic in nature addressing issues related environmental management, power trade, efficient water use for agriculture, and *water resources planning and management.* The remaining three are facilitative, supporting efforts to strengthen confidence-building and stakeholder involvement, applied training, and socio-economic development and benefit sharing. The projects were identified through a high level of consultative process between the NBI countries.

5. **Project Objective:** The objective of the project is to introduce analytical capacity in order to support the development, management, and protection of the Nile basin water resources in an equitable, optimal, integrated, and sustainable manner. The immediate beneficiaries will be policy and decision makers as well as planners and managers of water resources in the Nile riparian countries. Enhanced skills in water policy, project planning and management, and Decision Support System, will improve the on ward planning, identification and implementation of cooperative projects.

6. **Project Description:** The project will include three components:

   a) <u>Water policy good practice guides and support.</u> The objective of this component is to enhance the development and implementation of effective national water policies and strategies for integrated water resources management (IWRM) in the riparian countries. Though to be implemented at country level, the project also aims to provide a common understanding of the interaction between national policies, regional needs, and cooperative development between the basin countries and to initiate a regional dialogue on good practice elements of a water policy formulation process. The main outputs are a) good practice guides, and strengthened capacity for IWRM policy formulation, b) strengthened capacity and tools provided for the effective implementation of water resources policy, and c) the establishment of a fund for demonstrated national need for support. Some of the important activities include the establishment of a regional task force, the compilation of good policy practice guide, and case studies for policy development and implementation.

   b) <u>Project planning and management good practice guides and support.</u> The objective of this component is to contribute towards

improved IWRM in the basin by strengthening national capacities for multi-country project planning and management. Four main areas will be supported: a) IWRM project planning and design, b) project management and administration, c) development of technical guidelines in priority areas, and d) the establishment of a fund to provide technical assistance and advisory support at the national level.

c) Development of a decision support system (DSS) for the Nile Basin. The objective of this component is to build the technical infrastructure to facilitate water resources planning and management from a basin-wide perspective. Together with human resources development and institutional strengthening, the Nile Basin DSS will provide a framework of computer based platform for sharing knowledge, understanding river/lake behavior, evaluating alternative development and management schemes, and supporting informed decision making from a regional perspective. The component has four categories of activities:

- institutional development that strengthens the institutions and human capacity in DSS development and application,
- technical development that includes the design, development, and application of the decision support tools. This sub-component focuses on three DSS elements, a basin-wide communication and information management system, a regional river basin planning model,
- core national capacities, including Information Management System (IMS), and
- cooperation mechanisms focusing on the development of common guidelines for the collection, processing, analysis, and exchange of data and information.

7. Project Cost Estimate

Summary Cost Estimates		
	Components	**Costs (US$ million)**
1.	Water policy good practice guide and support	2.846
2.	Project planning and management support	4.442
3.	Nile Basin Decision support system	21.000
	Total	28.288

The project is estimated to cost a total of US$ 28.20 million covering all the 10 basin organizations. The financing gap is US$ 8.2 million.

8. **Possible Financiers and Indicative Financing Plan:** As of October 2001, US$ 19.8 was pledged by Denmark, GEF, UK, Germany, Norway, and Sweden. Funding sources for the balance of US$ 8.2 is being sought.

9. **Project Implementation:** The Nile-COM and Nile-TAC and supported by the NILE-SEC, will provide overall policy and guidance. A project co-coordinating committee will oversee the work from a broad technical and strategic perspective. A project management unit (PMU), comprising of the managerial, technical, and administrative support for all three-project components, will oversee the implementation of the project. The project will be completed in a period of 6 years.

10. **Project Benefits:** Cooperative development and investment planning, including sustainable development of water resources on a regional scale, is an important approach in the Nile Basin to alleviate poverty. The project will enable the identification and evaluation of joint water resources projects, based on sound information and aided by decision support tools. The development of mutually acceptable and beneficial investment projects will support sustainable economic growth and improved social conditions.

11. **Project Justifications:** To achieve integrated and sustainable management in the Basin it is important to assure that all countries have effective water policies and sufficient capacity to absorb, handle, and administer future projects. Efforts to improve water resources project planning capability, bringing all the countries to similar level, can be seen as an essential step in making effective use of the DSS and in ensuring effective planning of water resources projects at the national, sub-regional, and basin-wide level.

The policy and project planning components will have a definite lifespan and will be redundant as development and institutional capacity in the basin grow. In order to ensure technical sustainability of the DSS component, the project has made provisions for short and long-term training programs, the involvement of regional universities, twinning with DSS institutions, acquisition of advanced degrees, and career planning. Institutional sustainability and access to information are important, and a momentum of ownership, interest and usefulness has to prevail during the project period and beyond.

12. **Issues and Proposed Action**: The project will need to pay close attention to a number of issues in the course of implementation. The contribution of the project to socio-economic development has to be pursued by NBI states through identification of cooperative opportunities. The project will seek long-term financial sustainability, including country support through the budgetary process. The challenges to address technical issues such as the operation and maintenance of data collection networks, IMS, hardware and software and adaptability of DSS at all levels are aspects of project concern. As the project will be implemented at the regional and country levels, the institutional and manpower capacities, their flexibility and response time, updating of skills, commitment to exchange of information capacity will be important factors for project success. It is important for the project to be as broad based as possible through a mechanism of stakeholder participation. For the policy and planning components, broad participation including women is essential. Mechanism for multi-sect oral beneficiaries and decision makers to participate in coordination groups and discussion meetings at critical points need to be instituted during the development and application of the DSS.

13. **Proposed Involvement of NEPAD:** The role of NEPAD would be to lend support to the continuing regional cooperative framework to ensure continued commitment of Nile basin countries; enhancement of regional security, donor support to meet the financing gap as well as development projects resulting from this project.

SUPPORT OF OTHER NEW AND EXISTING RIVER BASIN ORGANIZATIONS

1. **Project Name and Location:** Support of Other New and Existing River Basin Organizations project will cover diagnostic Study of two of the Existing River/Lake Basin Organizations (BOs) in the continent. The initial study will be carried out, following expressed demand, for two of the following existing river BOs including: **Senegal River Basin Organization (OMVS); Niger Basin Organization (ABN); Gambia River Basin Organization (OMVG); Lake Chad Basin Commission (LCBC); Kagera Basin Organization (KBO); and Manu River Union (MRU)**

2. **Sponsor(s):** The project will be sponsored by all the respective RECs of the Basin organisation to be studied.

3. **Current Status:** Draft Terms of Reference for the study have been prepared but need to be further elaborated following consultations with the selected organizations. It is expected that the final TOR shall be ready within two months after commissioning.

4. **Background:** Most of the available water resources in Africa form part of shared (international) or transboundary rivers, lakes or ground water aquifers, and are being shared by two or more (in some cases as many as ten) countries. It is estimated that there are 57 such trans-boundary river / lake basins in Africa, occupying approximately 40% of the surface area of the continent. Some of the largest trans-boundary or international rivers in the world are found in Africa, including Congo, Nile and Zambezi river basins.

   The need for international co-operation for integrated development of trans-boundary or international rivers in Africa gained a lot of acceptance early in the post-colonial era. A number of international treaties were signed between countries leading to the creation during the sixties, of intergovernmental basin organizations including OMVS, ABN, LCBC and OGVS. Others like MRU, and KBO were formed not too long thereafter. Creation of BOs in the southern Africa region including Zambezi River Authority (ZRA), and Okavango River Commission (OKACOM), is a much later phenomenon, a process that continues even today.

   Establishment of most of the early BOs was done with a lot of enthusiasm, commitment and expectations by the countries involved. As a result, many of these organizations quickly drew up ambitious plans and programs to develop these shared resources. External support was also forth coming for some these developments. However, while some of these organizations have and continue to carry out important development work, most have been faced by a multitude of problems. They have failed to live up to expectations and are in a poor state of operation. The reasons for this deterioration of the organizations are many including:

a) Inability to maintain the initial level of political commitment by member states which has been followed by lack of concrete support;
b) Lack of clear legal, co-operational and organizational frameworks for effective development and management the shared water resources, which led lack of focus by the BOs, and to conflict of priorities between the BO and the member states;
c) Inability to raise funds internally and externally which has weakened some of the regional organizations to a point where some cannot meet their operational expenditures;
d) Politicization of BOs which has left some of them plagued by internal operational and managerial problems;
e) Some BOs have been severely affected by regional conflicts and civil strives in some of their member countries.

5. **Project Objectives:** The main objective of the project is to prepare a framework necessary for strengthening the existing BOs and also for creation of the future BOs, by carrying out a diagnostic study of two of the existing organizations. The project will provide support to address priority areas, in order to recommend the most appropriate options of setting up and running an organization to manage the shared water resources.

6. Project Description: The project will start with a diagnostic study being carried out for two of the six oldest existing BOs in order to identify the strengths and weaknesses of each. This will include review of the legal and institutional framework, mandate/mission of these organizations as well as their organizational set-up and management. From these findings, the study will identify the essential ingredients that should be considered while establishing a BO, and also recommend the most appropriate options of such establishment. The main activities of the study for each organization shall include but not limited to:

a) Examination of the legal and co-operational agreements (including treaties, acts and protocol agreements) used for the creation of the BO and make recommendations of modifications to the

legal and institutional framework, required to be made to ensure efficient management of the shared resources;

b) Review for the relevant national legislations pertaining to the creation of the BO for each member state of the BO, with the aim of identifying discrepancies and proposing harmonization;

c) Review of the consistency of BOs mandate/mission with the expectations of the member states;

d) Review the planning and budgeting processes together with any medium-term development programs and analyze how these fall within the expected mission of the organization;

e) Review the main development activities undertaken by each BO during the last 10 years and assess their effectiveness and sustainability;

f) Review management systems including technical, financial, operational and personnel procedures and assess their general suitability and effectiveness to the institution operations;

g) Review the organizational set-up and skills mix of each BO and assess its suitability to the organization's mandate, and make recommendations for improvements required to make the organization more effective.

h) The project will then provide support for the identified priority areas of each of the studied organisations.

7. **Project Cost Estimate:** The project is estimated to cost a total of US$ 11.50 Million covering 6 basin organizations.

Summary Cost Estimate		
	Component	**Cost (US$ million)**
1.	Review of existing Basin Organizations (2 No)	0.800
2.	Provide support to the two Basin Organizations	3.500
3.	Replicate Projects in other Basin Organizations	7.200
		11.500

8. **Possible Financiers/Indicative Financing Plan:** Being a new intervention, the financing for this project will have to be sourced under the NEPAD initiative.

9. **Project Implementation:** The project will be implemented under the direct supervision of the regional REC for the selected BOs to be studied or any of the other regional BOs as agreed among the six organizations. A Project Management Unit (PMU) comprising project Coordinator, a Hydrologist/Hydro-geologist, a financial analyst and an environmentalist shall be constituted to manage the implementation of the study, which will be carried out by a consultant recruited for this purpose. In addition, the respective BOs shall designate one of their senior staff members to be the liaison person in that organization. Following completion of the diagnostic review of each of the nine basin organizations, workshops will be held in each of the BOs region to present the findings and also preliminary recommendations for any proposed changes.

A firm of consultants will be recruited to carry out the study and make recommendations. This consultant will be supervised by the PMU. The study is estimated to last 30 months, and shall be preceded by elaboration of the TOR through discussions with the concerned organizations. The support to the organisation shall take approximately 3 years.

10. **Project Benefits:** The expected project outputs including identification of strong and weak points of each organization, and recommendations of the most appropriate regional basin organization, will be of great assistance in revitalizing the existing BOs. The outcome of the study shall also provide a framework of establishing future organizations where these have not been created so far. The BOs shall also benefit from the technical assistance provided to assist with implementation of the recommended changes. The revitalized BOs shall then become effective tools of regional development that will foster regional economic integration. In the end, all the people covered by each basin organization shall benefit from efficient use of scarce water resources.

11. **Project Justification:** Considering the recognized ineffectiveness of most of the established BOs, the time to analyze their performance is long overdue. If anything, available fresh water resources are under pressure in many regions of the continent. This calls for efficient utilization and conservation of these scarce resources. In addition, joint development of shared water resources is a vital catalyst in promoting regional development and economic integration. Suitable organizations are therefore necessary to facilitate cooperation and optimum use of these resources.

12. **Issues and Proposed Action:** The issue that needs to be addressed to enable the project to start is for an agreement on the two BOs that will be the focus of the project to assume the role of the executing agency. Identification of the source of funding is also required.

13. **Proposed Involvement of NEPAD:** Involvement of NEPAD is necessary to solicit the co-operation required to carry out the project. Furthermore, NEPAD has a vital role to play in marshalling the political will required to implement the recommendations following review of existing organisations.

ACTION PLAN FOR INTEGRATED WATER RESOURCES MANAGEMENT IN WEST AFRICA

1. **Project Name and Location**: The project is entitled "Action Plan for the integrated management of water resources in West Africa. It covers the member states of the Economic Community of West African States (ECOWAS): Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

2. **Sponsor(s):** The project has been initiated and coordinated by ECOWAS. The project was launched during the sub-regional conference on the integrated management of water resources held in Ouagadougou, Burkina Faso in 1998. The process involved, among others, diplomatic missions, international organisations as well as non-governmental associations and organisations.

3. **Current Status:** The foundation of this project was laid down during the Ouagadougou Conference on the integrated management of water resources in the sub-region. This conference aimed specifically at the following objectives: (i) sensitise decision-makers on water resources issues; (ii) build up a unified vision on water management; (iii) develop strategies and operational programmes; and (v) define the mechanisms, consultation bodies for the cross-border river basins. This conference recommended the introduction of an integrated management process in countries of the community and the creation of a Ministerial Monitoring Committee charged with supervising the monitoring process and implementation of recommendations. Consultations were held with: (i) regional bodies convened for their observations and suggestions; (ii) the donor community and development partners to inform them of the process; and (iii) the Southern African Development Community – Water Sector, to draw from its experience.

4. **Background**: The process for the development of integrated water resources management policies in the ECOWAS countries was initiated in 1998 following the Ouagadougou Meeting of Ministers. The principle of integrated water resources management was adopted and, in particular, a Regional Action Plan (RAP) by the highest political level.

   It was decided within ECOWAS to set up a steering and coordination mechanism comprising: (i) a Ministerial Monitoring Committee (MMC) made up of Ministers in charge of water resources in the member states; (ii) a Committee of Experts (CE); (iii) a Regional Consultation Committee (RCC), a consultative body; and (iv) a coordination named the Executive Body (EB). Its headquarters will be set up in Burkina Faso. The putting in place of all these bodies will take place in 2002.

4. **Objective:** The project's objective is to ensure, within the community the shift from a sectoral and fragmented management of water resources to an integrated management, with the view to establish sustainable development. The goals of the RAP concern the (i) implementation in each country of the community of an integrated management policy based on a national action plan; (ii) the creation of a regional cooperation framework for the integrated management of resources, harmonisation of national policies and legislation, the introduction or strengthening of consultation between neighbouring communities for the development of trans-border water resources and regional strategies for mobilising the financial resources required for integrated water management resources.

5. **Project Description:** The project is made up of six components, each containing a certain number of activities:

A) Support to national water resources integrated management plans, the activities of which are:

   <u>Support to the implementation of national action plans</u>.

   This action's objective is to: (i) assemble, index, translate and disseminate existing documentation; and (ii) elaborate a guide on the presentation of action plans. A2 Support to the implementation of national action plans. The aim is to put in place in each country: a national water plan geared towards a three stage integrated management of water resources: stocktaking, elaboration of plan, capacity building.

   <u>Stocktaking and monitoring of water resources</u>

   Works will include: (i) the capacity building of national structures in charge of the stock-taking and evaluation of water resources; (ii) elaboration of a methodology and the organisation of training courses; and (iii) the developing and setting up of computerised data on water resources.

Development of a participatory approach to women in integrated management.
This component will seek to evaluate women's status and formulate recommendations to enhance their socio-economic situation and further their participation in the integrated management of water resources.

Generalization of methods to contain the proliferation of water plants.
This component's aim is to evaluate the current situation, publish a guide on the elaboration of control actions, capacity building and coordination at the regional level.

B) Support to the re-organisation of Water Management in countries affected by Civil War: This activity will provide specific support to the restructuring of water supply services in countries ravaged by civil war (Guinea Bissau, Liberia and Sierra Leone). It will help in stocktaking, identifying needs, elaborating an Action Plan and building up minimal capacities to render the Plan operational.

C) Capacity building: (education, training, research and development): The overall objective is to: (i) develop methods and tools to foster information, education and sensitisation of water-rises; and (ii) put in place and/or strengthen training programmes relating to integrated management on one hand, and providing support to research-development programmes on the other.

D) Regional Coordination and the Integrated Management of Water Resources: This component is divided into two parts: Setting up of a Coordination and Monitoring Body for the Regional Action Plan for the integrated management of water resources in view of responding to the following objective: (i) facilitating the implementation and monitoring of the Action Plan by the Ministers concerned; (ii) create a framework for ideas and formulation of projects; and (iii) put in place a permanent set up for inter-country consultation.

E) Creation of a regional framework for cooperation and information exchange on water resources: Revival or establishing of consultation bodies between riparian countries for the management of shared water resources. This component will seek to: (i) elaborate a regional cooperation agreement on shared water resources and provide capacity building for its application; (ii) provide support to the ratification and follow-up of enforcement measures of international conventions; (iii) establish agreements and institute executing bodies for river basins which so desire; and (iv) review existing agreements to streamline them with the new policy.

F) Institution of a Regional Development Fund for the Integrated Management of Water Resources: The purpose of this activity is to elaborate and implement a regional strategy in view of mobilising financial resources required for the integrated management of water resources. The aim will be to give more focus to economic issues to give water its rightful place in regional economy, and lay down the financing requirements and mechanisms through the creation of a regional development fund.

7. **Project Cost:** The project is estimated at 23,933,000 US dollars (or US$ 24 million) broken down as follows:

Component	Cost (US$)
1. Support to national integrated water resources management plans	7,193,000
2. Support to the reorganisation of water management in countries affected by Civil War	4,710,000
3. Capacity building (education, training, research-development	5,160,000
4. Regional coordination of integrated management of water resources	1,580,000
5. Creation or revival of frameworks between countries for the management of shared water resources	3,860,000
6. Creation of a regional development fund for the integrated Management of water resources	1,430,000

8. **Financing Plan:** The financing plan could be global or divided by programme or by project depending on financing possibilities. Member countries' financial participation will be about 10% of the overall cost.

9. **Project Implementation:** The project implementation period is about 5 years. The major monitoring indicators are: (i) national and regional integrated management plans prepared or implemented; (ii) coordination or cooperation bodies set up; (iii) consultation frameworks established; and (iv) regional water fund instituted.

10. **Project Benefits**: The project is closely following the new strategic vision on the management of water resources for sustainable development. The project will help ECOWAS member countries to set up institutional, legal and financial instruments in view of an integrated management of water resources and enduring use and in a spirit of cooperation and solidarity.

11. **Project Justification**: West African countries are faced with a number of problems relating to the management of water resources such as: (i) higher water demands due to population and economic growth; (ii) impoverishment of resources, both in quantity and in quality because of drought and pollution; (iii) inadequate human and material means. Conflicts in water use will increase in the future both at the national (rivalry among users) and international levels (shared water resources). It has become crucial to promote an integrated management of water resources within the framework of a common and concerted approach at the regional level. The project will seek to ensure a shift towards integrated management through the creation of a propitious political, institutional and legal environment.

12. **Issues and Proposed Actions:** The project has been the subject of wide-scale consultation both among member countries as with the various partners like development institutions, financing institutions and non-governmental organisations. It equally disposes of a steering and coordination committee, and the adopted approach is a guarantee for success. It is highly recommended that consultation on all phases of the studies will be pursued.

13. **Proposed Role for NEPAD:** The project is of regional importance and is within the Framework for Action of the African Water Vision. Its purpose is to further the development of integrated management of water resources within an enlarged regional framework and to serve as a model of cooperation and solidarity in Africa. NEPAD's support would be instrumental in its success.

WATER RESOURCES MANAGEMENT SUPPORT FOR CENTRAL AFRICA

1. **Project Name and Location:** The project entitled "Water Resources Management Support for Central Africa" is closely following the initiative taken by the following countries of the sub-region: Angola, Cameroon, Congo, Gabon, Chad, Central African Republic and the Democratic Republic of Congo. It aims at enhancing the water resources management in Central Africa including the Congo River. The project will cover all the countries concerned.

2. **Sponsor(s**): The Ministries in charge of water resources in Central Africa designed the project.

3. **Current Status:** Following a resolution adopted by the Ministries of the countries concerned, a task force was set up with the view to collate all information necessary for elaboration of the instruments of establishment and organisation of this new sub-regional institution. Work is near completion and corresponding instruments will be submitted for consideration to the Ministers before their next meeting scheduled for June 2002.

4. **Background**: The decision to establish an institution responsible for integrated water resources management in Central Africa was taken at the meeting of Ministers in charge of water resources in Central African countries held in Brazzaville, November 2000. A task force was instructed in accordance with the resolution to collate all information necessary for the elaboration of the instruments establishing the creation and organisation of this institution.

5. **Objectives:** The objective of the project is to further an integrated management of water resources in the sub-region. This initiative is in line with the African Water Vision on water resources management.

6. **Project Description:** The project entails supporting the setting up of a regional institution for the integrated management of water resources. To this end, a project implementation unit comprising the focal persons designated by each of the member states under the supervision of Congo will be set up. The unit will, in particular be responsible for (i) taking stock and carrying out an evaluation of water resources management in member countries; (ii) carrying out harmonisation of policies and the legal framework; (iii) undertaking a study on the financing mechanisms for the regional institution; and (v) elaborating a regional action plan. The project's components are the following:

i) Support the setting up and running of a project implementation unit.

ii) Studies: (a) Harmonisation of policies and the legal framework; (b) Stock-taking, evaluation and water resources management; and (c) Study of the financing mechanisms for the proposed institution.

iii) Capacity building.

7. **Project Cost:** Project costs are estimated at 6.5 million US dollars broken down as follows:

Components	Cost (US$)
Support to the setting up and functioning of the project implementation unit (Installation, support staff, office equipment, etc.	2.500.000
Experts and consultancy services for missions on: - Harmonisation of policies and the legal framework - Stock-taking of water resources - Elaboration of a Regional Action Plan	2.000.000
Study on the institution's financing mechanisms	1.000.000
Capacity building for integrated management in Member States	1.000.000

8. **Financing Plan**: The financing plan is as follows: Member States will meet 20% of global project cost; Other financing sources 80% of overall project cost.

9. **Project implementation:** The project will be implemented by the Project Implementation Unit under the aegis of a country to be designated to direct operations. The project implementation period will be 2 years. The project's performance indicators will be: (i) project implementation unit installed and operational; (ii) technical assistance provided; (iii) studies completed; and (iv) the required number of agents trained and sensitised.

10. **Project Benefits:** The project will permit a shift from a fragmented sectoral and national water resources management to an integrated regional management within the framework of consultation and cooperation between riparian countries.

11. **Justifications:** The project justified on the urgent need to provide support to this initiative which is in keeping with the new strategic vision for water resources management in Africa.

12. **Measures and Recommendations:** Measures earmarked are crucial in order to guarantee the new institution all chances of success. A regular monitoring of this operation at the highest level is recommended.

13. **Role of NEPAD:** NEPAD will support a framework for the implementation of a project responding to the new strategic vision for water resources management and enhancing regional cooperation.

GUIDELINES AND SUPPORT FOR NATIONAL WATER SECTOR POLICY AND STRATEGY FORMULATION OR REVIEW IN MEMBER STATES

1. **Project Name and Location**: The project entitled "Support for the Development and Implementation of National Water Sector Policies and Strategies – SADC" was identified by the SADC region and has been under development process designed to harmonize national sector policies and strategies with those required for regional co-operation. The project will be undertaken in all 14 countries of the SADC region though the scope of activity will be country specific depending on level of existing policy development.

2. **Sponsor(s):** The sponsor of the project is SADC Secretariat situated in Gaborone, Botswana through the SADC Water Sector Coordination Unit.

3. **Current Status:** Project document has been prepared, approved and submitted to potential financing organizations. Implementation will proceed as soon as financing is secured.

4. **Background:** In order to support the sustainable management of water resources in the region, SADC members have adopted the SADC Water Sector Regional Strategic Action Plan (RSAP). The RSAP identified a number of opportunities, issues, and constraints to improved water resources management in the SADC region. One issue is the need to harmonize water policy in SADC states at different levels:

   a) Harmonization of national water policies with the principles of sustainable development and management of water resources.
   b) Harmonization of national water policies with SADC protocol on shared water courses
   c) Harmonization of policies across national boundaries to assist in the management of transboundary waters and running of river basin organizations.
   d) Harmonization between water policies and policies in key water using sectors.
   e) Harmonization of national water policies with other key SADC water policies and positions, such as the Vision and Framework for Action.

5. **Project Objectives:** The main objective of the project is to develop guidelines, which would give direction to the formulation of water policies in the SADC countries; and to support member states in the development of the policies and strategies and to implement same.

6. Project Description: There are five main components under the project. These are outlined together with the activities under each component.

   Review of Water Policies in all SADC States. Consistent water policy is essential for successful management of transboundary waters. The activities under this component comprise of the review of water policy in all SADC states vis a vis consistency between states, between key water using sectors, with the Protocol on Shared Water Courses, with other SADC policies and Water Vision.

   Preparation of Guidelines on Water Policy. Guidelines on mechanisms for harmonizing policies including sustainable use of water in key water using sectors, and improving consistency with the Protocol, and other SADC policies and positions will be elaborated. Practical examples and best practice examples and actions to address constraints will be provided. The activities are the preparation of draft guidelines, consulting and reviewing with member states followed by finalizing the guidelines and their introduction to policy developers.

   Preparation of a Framework Process and Work Plan to Guide the Development and Implementation of the National Water Policies and Strategies. The activities comprise of preparation of draft framework process and work plan, consult with member states and finalize the draft.

   Support to the Development of National Water Policies and Strategies in Selected Pilot SADC States. National water policies and strategies in some three states will be prepared, in accordance with the reviews conducted and guidelines prepared. Important elements to include are government decision-making process, policy, legislation, institutions, capacity building, public participation, and resource mobilization. The activities include: reaching agreement with selected countries for pilot case, prepare draft national water policy and strategy, conduct national review workshops, finalize the policy, and prepare report on best practice to assist with replication.

   Support to the Implementation of National Water Policies and Strategies. The activities work plan, timetable and costing will be known

upon completion of the implementation plan of each state. Suggested activities include: conduct of technical workshops, support by SADC for national budgeting for the implementation, and preparation of a report on lessons learnt.

Support to the Replication of the Preparation and Implementation of National Water Policies and Strategies in Other SADC Member States. Based on the experience of the preparation and implementation of national water policies in selected states, the same could be replicated in the remaining states using the best practices.

7. **Project Costs:** The project costs for Phase I is US$ 5 as estimated at 2002 prices. Phase II activities will be elaborated including costs as part of Phase I study.

Estimated Project Costs		
Phase 1	**Description**	**Cost (US$ million)**
Stage 1	Review, guidelines, and framework process	0.350
Stage 2	Development and implementation of policies and strategies	1.800
Stage 3	Support replication in other countries	2.400
All Stages	Management overhead costs	0.450
		5.000

8. **Possible Financiers:**Possible financiers who have shown interest include UNEP, GTZ, World Bank, USA, UK, FAO, UNDP, ADB, and Norway.

9. **Project Implementation:** The Water sector Coordination Unit and Member States will be the Implementing /Executing Agencies.

Implementation plan. The pilot phase of the project will be completed in 5 years. The overall completion could take 8 to 10 years depending on the progress made by Member countries.

10. **Project Benefits:** The development and implementation of harmonized water policies of each member state will facilitate the co-operative management of shared surface and ground water sources at the basin level, and will support the implementation of the Protocol on Shared Water Courses.

11. **Project Justification:** The SADC region has demonstrated its commitment to sustainable management of the region's water resources and accordingly adopted the SADC Protocol and Water Sector Regional Strategic Action Plan (RSAP). The RSAP identified a number of issues and constraints that needed to be addressed. One of these is the need for development of harmonized water policies and strategies. The implementation of this project is thus in line with the programs of the RSAP. The development of policies and strategies following an agreed guideline would ensure compatibility of policies and would eliminate the chance of conflicting water policies existing within the region.

The project is of a regional nature in terms of objective, activities, and outputs, and is in line with the strategic objectives of the RSAP. The project supports the socio-economic development of the region, contributes towards regional integration, and capacity enhancement of the stakeholders in being equipped with harmonized policies for cooperative management of transboundary watercourses.

12. **Issues and Proposed Action/Way forward:** The outstanding issue is securing finance for the project.

13. **Proposed Involvement of NEPAD:** NEPAD would lend broad support to continued cooperation between member states for timely development and implementation of policies and strategies, support SADC's effort in identifying finance, and would undertake a broad follow up of project implementation with a view to see progress to Phase II and also replicating similar projects in other regions.

WATER SUPPLY AND SANITATION - NIGER RIVER BASIN

1. **Project Name and Location**: The project entitled "Water Supply and Sanitation of Rural Communities in the Niger River Basin" is in keeping with the initiatives taken to upgrade the supply of clean water and sanitation of the rural population in the river basin hit by recurrent periods of drought and severe water shortages. The project area includes all the member countries of the NRBA, namely: Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria, and Chad.

2. **Sponsor(s):** The project was initiated by the Niger River Basin Authority in the year 2000, based on studies conducted in each of the member States.

3. **Current Status:** The various studies undertaken in the Niger have shown that a population of 84 million people live in a precarious socio-economic situation characterised, in particular, by net per capita income less than 500 US dollars a year, a low school enrolment rate and a difficult access to health care and treatment. From the health viewpoint, a good part of the population is exposed to water diseases such as guinea worm, cholera, that are sometimes are fatal due to the consumption of polluted water.

   The three-year action plan (2000-2002) approved at the 18th session of the NRBA Ministers' Meeting underscored the problem of clean water supply to communities, and instructed the Executive Secretary to take the necessary steps to make good this situation. The NRBA carried out an evaluation of country requirements and identified the sites. The project set off with NRBA financing as from the year 2000 with the construction of a first set of 15 boreholes in the following countries: Benin (3), Burkina Faso (1); Cameroon (1); Côte d'Ivoire (1); Guinea (1); Mali (3); Niger (1); Nigeria (4); Chad (1).

4. **Background:** The clean water supply and sanitation of rural communities in the Niger River Basin was initiated by the NRBA under its three-year action plan (2000-2002) approved at the 18th Session of the Ministers' Meeting held in September 1999. The Executive Secretary was instructed to take the necessary steps in view of providing adequate clean water supply and sanitation of the rural populations of the Niger River Basin adversely affected by drought. The programme was put forward following a study carried out in each of the countries concerned.

5. **Project Objectives**: The project seeks to meet the needs in water and sanitation of under-privileged rural populations living in the Niger River Basin through the putting in place and rehabilitation of water points, on one hand, and the setting up of sanitation systems on the other. The project's purpose is to further regional cooperation and help in improving, in a sustainable way, the living conditions and hygiene of the populations.

6. **Project Description:** The project concerns the development and equipping of 1800 new water points, the rehabilitation of 900 existing ones, and providing improved sanitation systems in the nine (9) member countries of the NRBA. The population concerned is about 84 million inhabitants. The project comprises the following components: a) Evaluation of requirements and sites identification; b) Development and equipment of 1800 new water points (200 water points per country) and setting up of sanitation systems at the rate of 200 water points for each country; c) Rehabilitation of 900 water points and sanitation systems at the rate of 100 water points for each country; d) providing improved sanitation to the population of the basin; and e) Sensitisation and formation of management committees.

7. **Project Cost**: The project is estimated at 30 million US dollars broken down as follows:

Components	Cost (US$)
Evaluation of requirements and site identification - Monitoring and control of implementation - Formation of management Committees	100,000
Development and equipment of 1800 water points	18,000,000
Rehabilitation of 900 water point	1,800,000
Setting up of new sanitation systems	8,100,000
Rehabilitation of sanitation systems	2,000,000

8. **Financing Plan:** The financing plan is as follows: The Member States of the NRBA will meet 10% of the overall project cost. Other sources of finance will provide 90% of overall costs.

9. **Project Implementation:** Project implementation will take 3 years. The development and rehabilitation of water points will be undertaken by each Member State according to an implementation schedule and set priorities. The project's performance indicates are the following (i) the populations are sensitised; (ii) management committees formed; (iii) water points and sanitation systems set up or rehabilitated.

10. **Project Benefits:** The project will assist to improve access to clean water and improved sanitation for deprived populations confronted with sever water shortage in the region that could have serious inroads in their health. It will also contribute to poverty reduction and save women and children precious time that they can devote respectively to education and their socio-economic pursuits.

11. **Project Justification:** The long period of drought that has hit the Niger Basin in the past two decades has resulted in a sharp decrease of the flow in the Niger River and its tributaries and at times leading to no flow at all. This drought is accompanied by strong evaporation that has reduced half of these flows in regions such as the Internal Delta. Some villages along the Niger River and its tributaries and sub-tributaries are thus deprived of water for a good part of the year, decreasing their socio-economic activities in a great way. Women and children devote most of their time in the search for water to the detriment of their activities. The project finds its justification in the urgency to put at the disposal of the populations of the river basin, adequate water points and sanitation systems to relieve the situation.

12. **Issues and Proposed Action:** The actions are well identified and the risks relatively limited, account taken of the strong commitment expected from the States and the populations concerned by the project. It is recommended that the Niger River Basin Authority, the initiator of this programme will monitor the state of progress during implementation.

13. **Role of NEPAD**: Considering that it is a project of regional importance and is within the Framework for Action of the African Water Vision, setting specifically objectives as the improvement of access to drinking water, NEPAD support would be instrumental in its success.

DROUGHT AND DESERTIFICATION CONTROL PROJECT IN THE MAGHREB

1. **Project Name and Location:** The project entitled "Drought and desertification control in the Maghreb", is in line with actions undertaken worldwide to halt the degradation of natural resources including water in arid and semi-arid regions, in accordance with the provisions of United Nations Convention, November 1996 on desertification control. The project will cover a total area of about 6 million km2.

2. **Sponsor(s):** The project was initiated by the Arab Maghreb Union with the view to further the regional integration and specifically with regard to protection and control of environmental degradation, in accordance with United Nations provisions on drought control that recommended the implementation of actions under the sub-regional plan of action (SRPA). The SRPA constitutes not only a framework for consultation coordination and integration of efforts by States, inter-governmental and non-governmental organisations, but also a set of coherent measures and mechanisms for the sustainable management of shared natural resources.

3. **Current Status**: The project presented in this project brief is part of the activities defined in the SRPA whose objectives are: (i) the implementation of a pilot trans-border operation focusing on the development of water points and on silting control actions; (ii) the valorisation and popularisation of traditional drought control techniques; and (iii) the putting in place of an information system on desertification and the environment. Project feasibility studies have been completed.

4. **Background:** The problem of desertification was incorporated in the national development policies of the Maghreb countries around the end of the 1970s following the Nairobi Conference. It was consequent to the signing on 17 February 1989 of the MARRAKECH treaty informing the Arab Maghreb Union Secretariat (AMU) that the file on desertification control had been incorporated at the sub-regional level through the elaboration of an SRPA according to a consultative and participatory process in line with the recommendations of the United Nations Convention.

   The Maghreb SRPA was formulated in 1995 and validated in Algiers in 1999. It is based on the realisation of the six following projects: (i) Institutional support to the sub-regional body in charge of the SRPA; (ii) Evaluation of the desertification process in the Maghreb and setting up of a system of information; (iii) Introduction of a surveillance network of ecosystems; (iv) Establishment of comprehension of drought preparedness plans and assistance in case of catastrophe; and (v) Establishment of an integrated trans-border programme in the arid eco-systems of the Maghreb. The project identified in the project brief is an integral part of actions defined in the SRPA.

5. **Objectives:** The project's objectives are as follows: (i) the undertaking at the Algerian and Tunisian border of a pilot desertification control operation centred on the protection of agricultural perimeters and infrastructure against silting and the furtherance of high water savings techniques; (ii) the valorisation and dissemination of know-how an traditional drought control techniques and mobilisation of running water in the Maghreb; (iii) the setting up of an information dissemination system on desertification and the environment in the Maghreb Arab Union.

6. **Project Description:** The project comprises: a) The implementation of a pilot operation at Algeria-Tunisian border at Hazoua (Tunisia) and El Oued (Algeria) pertaining to: (i) the construction of silting control devices through mechanical and biological procedures; (ii) development of access roads; (iii) development of water points for cattle; (iv) the equipping of water points and popularisation of high water saving irrigation techniques; (v) institutional strengthening technical assistance and training. b) Stock-taking, valorisation and dissemination of know-how and techniques in the Maghreb concerning drought and desertification control and mobilisation of running water, by way of guides, video films and training courses. c) The elaboration of a regional data base and setting up of a system of information on desertification and the environment aims at collecting and passing on comprehensive information on physical degradation, desertification and environmental monitoring.

7. **Project Costs:** The project is estimated at 6,250,000 US dollars broken down as follows: Realization of a pilot operation at Algeria-Tunisian border (US$3,600,000); Valorisation of know-how and techniques (US$650,000); Elaboration and setting up of a system of information (US$2,000,000)

8. **Financing Plan:** The financing plan is as follows: The AMU will meet 10% of overall project costs. Other sources of finance will cover 90% of overall costs.

9. **Project implementation**: Project implementation according to the implementation schedule will take 5 years.

10. **Project Benefits**: Through this pilot operation, the project will make it possible to assist the population living in regions highly prone to drought and desertification, to improve their living conditions and income through the following actions: protection of irrigated areas and infrastructure against silting development and equipment of water-points, livestock development, tourism promotion etc. Furthermore, the experience acquired during the project's implementation will receive widespread publication in the Maghreb for its extension and replication in the regions threatened by the advancing desert. Finally, the setting up of a system of information will help in scientific and technical research in this area for the fine-tuning of strategies and desertification control measures in the Maghreb.

11. **Project Justification:** The project is in keeping with the regional drought control programme; it is justified by the need to preserve habited areas, farms and infrastructure, threatened with extinction the advancing desert. Through the pilot operation, the project will provide generalized experience and popularise desertification control techniques in the Maghreb.

12. **Issues and Proposed Actions**: Measures to be taken and executing agencies have been defined and the risks are relatively limited given the strong commitment from regional and national institutions and that of the populations concerned. Project coordination and support by the Maghreb Arab Union is expected to guarantee success.

13. **Role of NEPAD:** The project is of regional importance and responds to the objective of environmental conservation. In this regard the NEPAD could through this project revitalise the AMU and revive regional cooperation.

GROUND WATER MANAGEMENT PROGRAMME FOR THE SADC REGION

1. **Project Name and Location:** The "Ground Water Management Program for the SADC Region" was initiated in 1998 and has been partially under implementation. The program will be undertaken in all 14 countries of the SADC region, namely: Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

2. **Sponsor(s):** The sponsor of the program is SADC Secretariat situated in Gaborone, Botswana. The Water Resources Technical Committee (WRTC) through the Sub-Committee for Hydrogeology is responsible for supervision of the program or serving as steering group for the implementation of programs/projects of regional magnitude. Water sector departments, hydro-geological units and where applicable river-basin organizations (RBOs) will utilize the project generated guidelines, data and information for planning, quality control and management of groundwater resources.

3. **Current Status:** Ten sub-projects have been developed and approved under this program with an estimated cost of US$ 17.2 million (2002 estimates). Using funds and technical assistance secured from French Government adding to about US$2.9 million, implementation of 5 of the 10 projects (initial phases) is in progress. The program part entitled "Protection and Strategic Uses of Groundwater Resources in the Limpopo Basin and Drought Prone Areas of the SADC Region" is being elaborated for possible financing through France, GEF. The financing gap is US$ 14.3 million out of which, if approved, France GEF will provide US$8 million.

4. **Background:** Groundwater is an important source of water supply for about 37% of the total population in the SADC region. Surface water provides 23% while the remaining 40% of the population rely on unsafe water sources. Groundwater is the primary source of intensive irrigation in some parts of SADC (South Africa) and has a significant role to play for food security through small-scale irrigation (gardens). As drought affects several countries of the region, drought management initiatives need to take into account the protection, conservation, development and sustainable management of groundwater. Some of the SADC Member countries have limited knowledge of their groundwater resources thereby affecting their long-term policy. As a number of the groundwater reservoirs (aquifers) are found within several countries, there is a need to co-ordinate resource assessment in transboundary water bodies.

   Groundwater was thus given attention and an assessment of the groundwater resources management situation was carried out in the SADC Member States, in consultation of major stakeholders followed by the preparation of the Groundwater Management Program for the SADC Region. It includes 10 projects of regional significance and supports the national programs with due consideration of transboundary issues. The program was developed within the framework of SADC's Regional Strategic Action Plan for Integrated Water Resource Development and Management (RSAP).

5. **Project Objectives:** The general objectives of the study are to:
   - promote sustainable development of ground water resources at sub- regional scale in terms of research, assessment, exploitation and protection,
   - assess groundwater management issues in member states and provide technical support for their assessment and management programs (including capacity building, institutional and legal framework, policies, socio-economics and financing),
   - develop the groundwater component in the context of regional integrated water resources development and management approach, with a particular emphasis on the role of groundwater in drought management issues, and
   - intensify links between national and regional levels of activities within a general framework of regional economic integration.

6. **Project Description:** The program includes ten projects/components and is herein outlined.

   Component 1: <u>Capacity Building within the context of Regional Groundwater Management Programme</u>.

   Activities: Review the capacities of member States and devise a program for capacity building.
   Outputs: Capacity of Member States enhanced for the successful implementation of the program.

   <u>Component 2: Develop minimum common standards for groundwater development in the SADC region.</u>

   Activities: Assess current practices and procedures in Member States and prepare

recommended common standards for the development and protection of groundwater resources.
Outputs: Regional Common Standards and Guidelines for the Development of Groundwater.

Component 3: Develop a regional groundwater information system.

Activities: Assess the existing groundwater information systems in Member States and identify their needs for improvement. Define objectives for the regional Information System and develop capacity for exchange of information.
Outputs: A functional groundwater information system with GIS capacity to store, retrieve and manipulate drought related monitoring data and groundwater data of regional significance.

Component 4: Establishment of a regional groundwater-monitoring network

Activities: Evaluation of the current system in ground water monitoring, preparation of proposals for rationalization of monitoring networks, and design of Regional Monitoring System. Organize a workshop to introduce/validate system.
Outputs: A functional groundwater monitoring system. Assess regional impact of drought and abstraction. Joint management of major river basins.

Component 5: Compilation of Region Hydrogeological Map and Atlas for the SADC Region.

Activities: Review existing national hydrogeological maps, legends, parameters, etc. Propose uniform hydrogeological map parameters. Define the overall structure and design the map and atlas.
Outputs: Region hydrogeological map and atlas.

Component 6: Establish a Region Groundwater Research and Training Institute.

Activities: Collect views of research/education institutions and groundwater professionals. Identify and elaborate options for the location, structure, and function of the research institute/commission.
Outputs: A region groundwater research institute/commission
Component 7: Construct a website on Internet and publish quarterly newsletters.

Activities: Design a website for the ground water industry in the SADC, including an inventory of relevant institutions, professionals, and updated activities. WSCU staff to be trained on website updating.
Outputs: A website on internet and newsletters. A functional groundwater information system

Component 8: Region Groundwater Resources assessment of Karoo aquifers.

Activities: Synthesis of available hydrogeological data, in order to map the aquifer extent, and identify data gaps. Prepare a comprehensive plan for specific recharge studies, quantification of resources and identification of projects to be taken at local scale.
Outputs: Characterized ground water occurrence and resource assessment for joint management of Karoo Aquifers at sub-region scale.

Component 9: Region groundwater resources assessment of Precambrian Basement aquifers.

Activities: synthesis of available hydrogeological data, statistics on borehole success rate, evaluation of appropriate siting techniques, identification of data gaps, evaluation of recharge variations and potential, proposal for feasible groundwater development.
Outputs: Characterized ground water occurrence and assessment of the development potential of Precambrian aquifers.

Component 10: Groundwater Resources Assessment of Limpopo/Save Basin

Activities: Characterization of ground water occurrence in the basin, assessment of the groundwater component of hydrological cycle, water balance study, evaluation of groundwater development potential, and impact of river flow.
Outputs: Understanding under a pilot study, the surface and groundwater interaction at basin level in view of integrated water resources management, including drought management.

7. **Project Cost Estimate**: The total project cost is estimated at US$ 17.2 million. By April 2002, financing to the tune of US$ 2.9 million has

been secured, leaving the financing gap at US$ 14.3 million.

8. **Possible Financiers/Indicative Financing Plan:** Since 1998, the WSCU through the French Technical Assistance, has undertaken an assessment of groundwater management issues in the SADC, and has been developing the terms of reference for project proposals. Through a financing mechanism of the Global Environmental Facility, PDF Block B Grant, implementation of 5 of the 10 projects (initial phases) is in progress. Interested cooperating organizations for further financing include: France GEF, World Bank, Germany, SIDA, and UNESCO.

9. **Project Implementation:** Implementation of the initial phases of the program is being conducted through the WSCU and will continue for the remaining parts of the project. A technical assistant expert is assigned to the WSCU. The SADC Water Resources Technical Committee through the Sub-committee for Hydrogeology provides technical backup and review during the implementation of the program.

   Implementation plan. The program is envisaged to be implemented within a period of 3 to 4 years, depending on funding availability.

10. **Project Benefits:** The main beneficiaries are the water affairs and hydrogeological units of Member States whose capacities will be improved through trained manpower, equipment and facilities, good practice guidelines, functional region groundwater information system (website and newsletter), region groundwater monitoring network, hydrogeological map and atlas, and establishment of a region groundwater research institute/commission. This will better equip the water affairs and hydrogeological units of Member States to conduct integrated water resources planning and management at the basin level, revise policies that reflect the new information, plan effective drought management initiatives, guide planning water supply especially in rural areas, and co-operate effectively on transboundary groundwater utilization, regulation and monitoring.

11. **Project Justifications:** The Groundwater Management Program is of a region nature in terms of objective, activities, and outputs. The identified projects are in line with the following objectives of the Regional Strategic Action Plan (RSAP): improvement of national and transboundary river basin management, planning and coordination, improvement of the legal and regulatory framework at the national and region level. In addition, improvement of information acquisition, management and dissemination, supporting awareness building, education and training, promotion of public participation, and investment in infrastructure (coverage of rural water supply) are objectives of RSAP met by the projects. This program was placed under Group 6: “Stand Alone or Special Priority Areas” of SADC water sector programs.

12. **Issues and Proposed Action/Way forward:** There are no major outstanding issues under this program. The way forward for this program is to secure funding. Assignment of an executing agency will be followed as soon as funding is secured.

13. **Proposed Involvement of NEPAD:** The role of NEPAD would be to seek commitment and contribution from Member States to implement the project and also facilitate availability of funding required, and also the replication of similar projects in other regions.

ASSESSMENT OF SURFACE WATER RESOURCES

1. **Project Name and Location**: The project entitled "Assessment of Surface Water Resources" was identified by the SADC region. It has been under development process designed to assess and quantify the surface water resources of the whole of Southern Africa in a co-coordinated and unified manner, as well as building capacity within the region to make site specific water resource assessments. The project will be undertaken in the continental countries of the SADC region.

2. **Sponsor(s):** The sponsor of the project is SADC Secretariat situated in Gaborone, Botswana through the SADC Water Sector Coordination Unit. The WRTC through the Sub-Committee for Surface Water Hydrology is responsible for technical review and approval.

3. **Current Status:** The detailed Project Brief under the title "Terms of Reference for a Study to Quantify the Surface Water Resources of Southern Africa " was compiled for the SADC Water Sector Coordination Unit by the Water Research Commission (WRC) of South Africa. The project is planned to be undertaken in two phases: Phase I, lasting a period of 4 years followed by Phase II which is envisaged to be finalized in a further 6 years. The financing document has been provided to potential financers and response is awaited.

4. **Background:** The regional estimates place renewable freshwater resources at an annual average of 650 billion m^3 distributed in rivers, lakes, and ground water bodies. All the countries share one or more rivers. Rainfall patterns vary dramatically and droughts are frequent causing severe impacts on environmental and economic activities in the region. Some areas of the region are prone to severe flooding. With increasing population, water will become an increasingly scarce resource affecting growth in industry, agriculture and urban centers. Competition for shared water resources will intensify. Water scarcity will impact on the policies and programs for rural, urban and industrial development. Poverty has risen steadily in the region, calling for programs for improving people's standard of living. Water is key to achieving this through reliable access of water for agriculture, and safe water and sanitation services. To address the deteriorating food security conditions in the region, there is need to expand water delivery infrastructure, protect aquatic resources and expand livestock (and wildlife) watering. The supply of water to industry, power generation mining and manufacturing systems need to be planned, regulated, and monitored.

   Recognizing the importance of water resources for the economic development of the region, SADC adopted the Water Regional Strategic Action Plan (RSAP). The Strategy reaffirmed the importance of the regions' water resources and its influences on all aspects of the region's economic and social performance. In 1998, the RSAP together with 31 projects/projects was presented to the international community for support. The "Assessment of Surface water resources" was one of the projects submitted whose purpose is to make a SADC-wide surface water resources assessment. This assessment should build on existing work at a national level, build on capacity in implementing institutions, promote confidence in the assessment products among other member states and support the concepts of information access, equitable sharing of resources and environmentally sustainable water development, to which the states are committed in the Protocol on Shared Watercourse Systems in the Southern African Development Community.

   The Terms of Reference for the project was prepared and finalized in 2001 taking into account the comments of Member States. This entails duration of 8 to 10 years, and costing US$16.27 million. In order to facilitate quicker implementation, the project was reformulated in two phases. Phase I will have a duration of 4 years at an estimated cost of US$ 5 million. Phase I will be implemented in two river basins as a pilot phase, but will provide the full range of envisaged outputs based on a methodology that is considered to be applicable for all subsequent phases. Attempt will be made to involve all continental Member States in at least some aspects of the project. Accordingly, a "Proposal for Funding the Implementation of PCN 14- Assessment of Surface Water Resources of SADC" has been prepared and awaits approval by the Council of Water Ministers.

5. **Project Objectives:** The main objective of the project is to produce and make accessible a SADC – wide Surface Water Resources Assessment, in a manner that builds capacity in implementing institutions, promotes confidence in assessment products amongst Member States, and which ensures that the assessment supports equity amongst stakeholders through sharing water within international river basins, through national and river basin planning, and through operational water resources management.

The specific objectives are:

i. To generate monthly time series of naturalized river flow at the sub-catchment as well as at major river and basin scale;
ii. To develop and distribute databases of the generated river flow and associated information (spatial data, rainfall, evaporation, water use, etc.);
iii. To develop and distribute tools for accessing and applying the information contained within the databases;
iv. To build capacity within the SADC water resources community, to make use of the developed information tools; and
v. To improve inter- and intra-country, as well as international networking and to improve the ability of SADC Member States to develop water sharing programs in a sustainable and equitable manner.

The project is in line with the SADC Protocol on Shared Watercourse Systems that provides the necessity and importance of initiating a regionally coordinated study about the quality and quantity of water resources.

6. **Project Description:** The project will be implemented in two pilot basin areas with technical support provided by personnel recruited from within the SADC region. The project will be undertaken at four levels. A Steering Committee will guide the Implementing Agent in the execution of the project. At the second level, the Implementing Agent and the Project Wide Team will be responsible for the technical management of the project based on the directives of the Steering Committee. At level 3, Technical Steering Committees will be established for each basin and will ensure satisfactory technical progress and liaison with associated stakeholders. At level 4, the designated body in each Member State will carry out preliminary studies, data inventories that can add value to the outcome of Phase I. There are five components of the project as herein described.

Component 1: Generation of monthly time series of river flow. The activities under this component are: time series data collection, measurement of field data, time series data processing and preparation, spatial data collection, spatial data processing and preparation, selection of rain-fall-runoff model and modeling software, rainfall-runoff model calibration and validation, naturalization of the observed river flows in calibration catchments, regionalization of rainfall-runoff model parameters, generation of regionalized long-term rainfall time series and simulation of river flows for all catchments. The output is the elaboration of database management software.

Component 2: Develop and distribute databases. The activities comprise of database design for both time series and spatial data, populating the databases, and identification of associated products. The outputs are consolidated and integrated databases of spatial and time series information relevant to the assessment of surface water resources in all SADC countries.

Component 3: Develop and distribute tools. The activity under this component is the development of application tools, with the output of regionalized model parameter, observed and simulated time series of monthly hydrometeorological data for a standard period, regionalized water usage information, as well as guidelines for the use of both the data and the modeling techniques within the various basins.

component 4. capacity building. the activities comprise of training and capacity building during the long-term project and training and capacity building on products. this will have outputs comprising of training courses and manuals on the use of the software, models, and database information, improved capacity in the (sub-) region related to processing primary hydrometeorological data, analysing spatial data, interpreting hydrometeorological data, using rainfall-runoff and associated water resource estimation models and the ability to make efficient and informed decisions about water resource development options using the information and tools generated to the long-term project.

Component 5. Improve networking. The activity under this component is the facilitation of networking, resulting in improved capacity to access and exchange information

7. **Project Cost Estimate**:

Estimated Project Costs		
	Description	**Cost (US$ million)**
Phase 1	Implementing Agent	0.140
	Steering Committee	0.100
	Study Specialists	0.515
	Country Study Teams	1.360
	Basin Study Teams	1.440
	Special Outsourced Studies	0.300
	Training/Information Workshops	0.640
	Contingency – 10 %	0.465
	TOTAL	4.960
Phase 2	Estimated Cost	11.310
TOTAL		*16.270*

The project costs as estimated at 2002 prices are US$ 16.27 million. Phase II costs are preliminary estimates, as the study extent will be elaborated, including costs as part of Phase I project.

8. **Possible Financiers/Indicative Financing Plan:** Possible financiers include the Netherlands, Sweden, FGEF, USA and UK. To date US$ 0.300 million has been secured, with the financing gap being US$ 16.0 million (US$ 5.0 million in Phase I, and US$ 11.00 million in Phase II). Phase I is proposed for support under NEPAD's Short-term Plan.

9. **Project Implementation:** The SADC Water Sector Coordination Unit will be the Implementing Agency. Direct implementation will be undertaken through designating a water research organization or consultants who would be supervised by the WSCU.

   Implementation plan: The project is planned to be implemented within a period of 8 to10 years, out of which Phase I will take the first 4 years.

10. **Project Benefits:** The main beneficiaries will be the sector stakeholders of each country as well as basin organizations and SADC water sector bodies who will be equipped with reliable and mutually acceptable water resources data as well enhanced capacity and tools for planning and management of water resources.

    The project will contribute to the improvement in the efficiency of water resource estimation through the development of technical and institutional capacity and the provision of necessary data storage and analysis tools. The project will contribute to the integration of national scale experience and data at the regional level. The project will also contribute to consistent and environmentally sustainable resource management, and to the development of common technologies in the field of water resource management.

    The project will further contribute to the development of common methodologies in the field of water resource management and will improve the ability of Member States to reach agreements on the use of shared resources. The development of a regional database on water availability and existing water utilization will enable sound resource based planning and management in sectors other than water. This is expected to contribute to the understanding of competitive advantages and disadvantages of the use of water in the region.

    Other project benefits include the provision of time series of naturalized stream flow, as well as present day water use for sub-basins in the region for determination of environmental release consideration, compilation of sub-basin scale monthly rainfall time series and other spatial information for ground water recharge studies, generation of data for drought vulnerability assessments in conjunction with SADC-HYCOS project and contribution to flood estimation procedures.

11. **Project Justification:** The project is of critical importance for sustainable use of water resources for socio-economic development of the region. The development of technical and institutional capacity and the provision of database and analysis tools will improve the efficiency of water resource estimation. It is equally important to acquire sufficient information on river flows and related data to enable sound and consistent resource management and maintain ecological diversity. The development of water resource databases using common methodologies throughout the region should help to avoid conflict between member states, improve the ability to reach agreement in shared water systems and assist in the equitable apportionment of water between sectors or economic sectors. The development of a regional database on water availability and existing water utilization will enable sound resource based planning and management in sectors other than water.

    The project is of a regional nature in terms of objective, activities, and outputs, and is in line with the strategic objectives of the Regional Strategic Action Programme (RSAP). The stated purpose is to make accessible a SADC-wide surface water resources assessment. The project supports the socio-economic development of the region, contributes towards regional integration, and capacity enhancement of the stakeholders in being equipped with mutually recognized database for the water sharing and cooperative management of transboundary rivers.

12. **Issues and Proposed Action/Way forward:** The outstanding issue is securing of finance for the project. Direct implementing body will be designated from one of the Research Organizations in the SADC or through tenders in accordance with the requirements of the financing stipulations.

13. **Proposed Involvement of NEPAD:** This programme is earmarked for NEPAD support as it promotes the sustainable development of

surface water resources at regional levels, builds capacity at the national level, and has continued to interest all SADC Member countries. NEPAD would lend support to the continued commitment and cooperation of the member states, and SADC's effort to obtain financing. In addition, NEPAD would undertake a broad follow up of project implementation with a view to replicating similar projects in other regions.

EXPANSION AND IMPLEMENTATION OF SADC HYDROLOGICAL CYCLE OBSERVATION SYSTEM (SADC HYCOS)

1. **Project Name and Location**: The project entitled "Expansion and Implementation of SADC HYCOS" is a continuation of Phase I and has the objective of promoting regional cooperation between the National Hydrological Services (NHSs) and to set-up a regional information system on water resources. The project will be implemented in all 14 countries of the SADC region with relevance for river basin planning, development and management.

2. **Sponsor:** The sponsor of the project is SADC Secretariat situated in Gaborone, Botswana through the SADC Water Sector Coordination Unit. The Water Resource Technical Committee (WRTC) through the Regional Steering Committee is responsible for technical review and approval. Another important sponsor of the project is WMO, which supported Phase I of the SADC Hydrological Cycle Observing System (SADC-HYCOS), and integrates such regional projects as part of the World Hydrological Cycle Observing System (WHYCOS).

3. **Current Status:** A pilot project involving a total of 50 Data Collection Platforms (DCPs) was completed in 2001, under Phase I. In order to build on the achievements of Phase I, the WSCU, in collaboration with the Canadian International Development Agency (CIDA), developed a "Framework Document for the Consolidation and Expansion of SADC-HYCOS". This document provides the basic terms of reference for further development of SADC-HYCOS. A project implementation document has been prepared in consultation with WMO providing a detailed description of the activities to be undertaken in the implementation of Phase II of the Project. Currently funding is being sought to initiate the project.

4. **Background:** The 1998-1994 Sub-Saharan Africa Hydrological Assessment by World Bank/UNDP confirmed that there was considerable deterioration in the capacity of National Hydrological Services to supply data and information on the state of their water resources. However, the demand for such information for the development and management of water resources has increased. In response to the needs established by the various surveys, the WMO in association with the World Bank launched the WHYCOS in 1995 with the objective of promoting and facilitating the exchange and use of water resources data and information, strengthening the technical and institutional capacities of the NHSs to collect, process and distribute hydrological data, and supporting the NHSs in enhancing the development and operation of adequate hydrological observing networks. WHYCOS has been implemented through a number of regional HYCOS.

   For the SADC region, the establishment of a reliable region-wide hydrological network and information system on water resources has been a long-standing priority objective. The SADC-HYCOS (Phase I) has been under implementation in close collaboration with NHSs and WMO. Under Phase I, a network of 50 DCPs was installed for the collection and data transmission via the Meteosat data collection system. The Phase I is considered a success from the perspective of the cooperative mechanism that has been established to address water related problems on a regional scale and the nucleus of a water resources information system is in place.

   In 1998, the SADC Water Sector recognized the benefits of SADC-HYCOS and took steps to further its consolidation and expansion as one of the key projects in the Regional Strategic Action Plan (RSAP) for Integrated Water Resources Development and Management. The development of Phase II of the project will be carried out in consultation with river basin organizations in the region. WMO will continue to provide the technical supervision of the project. Phase II will include the new SADC Member States, undertake a comprehensive need assessment for hydrological information, to expand the DCPs as required such as for flood monitoring/forecasting, water sharing, and assessment of the water resource and to expand the water resources information system to be readily available to all NHSs.

5. **Project Objectives:** The objective of the project is to enhance the effectiveness of real-time and near real time hydrological monitoring across the SADC region, by a consolidation and expansion of SADC-HYCOS, including implementation in the Angola/Namibia basins. The SADC-HYCOS Phase II is designed to consolidate and expand on the project activities that were initiated during the first phase. The consolidation will address the need for further institutional strengthening, building capacity in using the new technologies for maintenance and operation of DCPs, and in the development and management of national and regional databases using common standards and operating practices. The expansion will ensure that the system is fully responsive for regional needs for

water resources assessment, drought monitoring and flood forecasting.

6. **Project Description:** The project will be implemented in two stages: Under Stage 1, which will last for a period of 6 months, detailed project and implementation plan will be prepared, while in Phase 2, implementation of main project activities will be undertaken and will completed in a period of 42 months. The project components and activities under Stage 2 are herein described.

   component 1: improvement of the network of hydrological observing stations. the activities under this component are procurement and delivery of equipment, installation of equipment and operationalize stations, establishment of data transmission and reception procedures, and training of staffing the installation, maintenance and operation of equipment, with particular attention to dcps. the outputs under this component comprise of 100 mapped stations, 50 real time and another 50 non real-time equipment supplied and installed and operationalized, data transmission system established and staff trained in the installation, maintenance and operation of equipment.

   Component 2: Further development of the regional and national water resources information systems. The activities under this component comprise of comprehensive analysis of the needs of the participating countries and establish database management structure, install database on upgraded computer hardware, develop protocols for data exchange between regional and national databases, develop mechanisms for quality assurance and develop procedures for water resource data for particular river basins. The outputs comprise of fully operational regional and national databases, upgraded computer systems, agreements on data exchange, agreement of procedures and trained staff for each service.

   Component 3: Identification and development of hydrological products of regional interest. The activities under this component comprise of surveying the needs for hydrological products, in the SADC region, arrange for the transfer and adaptation of tools and products developed by other HYCOS projects, and provide staff training in the use of new tools and products. The outputs include survey results of regional hydrological needs, tools for data presentation and information generation for decision support established, and staff trained.

   Component 4: Training and awareness building. The activities under this component comprise of addition training based on assessed further needs, and promotion of awareness activities for the general public, water agencies and decision-makers. The outputs under this component are trained staff, and participatory consultations through workshops, press releases, and information brochures produced on the role and services of the NHSs.

7. **Project Cost Estimate:**

Description	Cost 2002 Prices (US$ million)
Joint monitoring between Angola and Namibia	2.000
Water Resources Monitoring Systems for Lake Malawi and Nyasa	1.500
Congo HYCOS	4.000
HYCOS System in rest of the Countries	4.500
Total	**12.000**

8. **Possible Financiers/Indicative Financing Plan:** The Framework Document and Implementation (Funding) Document have been prepared with the assistance of CIDA and WMO. The Netherlands Government has been asked to finance parts of Phase II and response is awaited. Other cooperating partners that have shown interest in addition to CIDA and WMO include Sweden, FGEF, EU, USA and GWP. The costs of other related sub-projects are: US$ 2.0 million for Joint Monitoring System Between Angola and Namibia; US$ 1.5 million for Water Resources Monitoring Systems for Lake Malawi and Nyasa (PCN 18) and US$ 4.0 million for Congo HYCOS (possible EU financing). The estimated total project cost is US$ 12.0 million, out of which the financing gap is about US$ 11.5 million.

9. **Project Implementation:** The Implementing /Executing Agency will be selected after the financial arrangements have been finalized. The WMO as the custodian of the WHYCOS will act as the Supervising Agency, providing critical technical service to guide the SADC Water Sector Coordination Unit on the implementation of the project. The project will be implemented within a period of 4 years, out of which Stage 1 takes the first 6 months.

10. **Project Benefits:** The beneficiaries of the project include NHSs, water sector organizations, river basin organizations, RCU, various organizations involved in water related projects as well as people living in flood prone, drought or irrigated areas. They will benefit from improvement of the real-time observation network and data transmission and reception capability, development of a regional water

resources information system, as a decision-making tool for water management, generating mutually acceptable hydrological products for both national and regional applications and continuing the training of staff. Sectors benefiting will be flood control and disaster mitigation, drought forecasting and management, irrigation management, protection of aquatic ecosystems, and the monitoring of international agreements for shared and transboundary rivers.

11. **Project Justification:** The project will facilitate the improved and reliable water resources data and information availability and dissemination for regional and national water resources management. The SADC-HYCOS project provides the underpinning to further develop and implement the Protocol on Shared Watercourses, to the provision of information for other SADC projects. The project will also provide an enabling environment for policy development, and support for emergency preparedness and vulnerability assessment and development of adaptive strategies and actions in response to adverse effects of climate change on poverty reduction, food security, environmental protection and socio-economic development. Sustainability of the project after implementation will be ensured through the take over of the DCPs by the NHSs and active participation of river basin organizations. In addition, a portion of water charges/fees collected from various users could be dedicated for sustaining the DCPs and information management systems. The project fulfils a large number of provisions of the Regional Strategic Action Plan and Water Vision for Africa.

12. **Issues and Proposed Action/Way forward:** In order to proceed with the project, the main outstanding activities required include approval of the project implementing (financing) document by SADC WSCU and securing funding amounting to US$11.5 million over a period of 4 years. The project will be implemented with technical support provided by international and national personnel. A Project Steering Committee will be established to oversee project policy. An Implementing Agency will be identified in one of the NHSs of SADC.

13. **Proposed Involvement of NEPAD:** NEPAD would lend support for continued cooperation between the SADC member states and SADC's effort to seek financing.

IMPLEMENTATION OF IGAD HYDROLOGICAL CYCLE OBSERVATION SYSTEM (IGAD HYCOS)

1. **Project Name and Location**: The project is entitled " Implementation of IGAD HYCOS" and will be implemented in the IGAD member states of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan, and Uganda.

2. **Sponsor(s):** The member states are the sponsors of the project, through the IGAD.

3. **Current Status:** The initial project document has been reviewed and endorsed by the Directors of Meteorology, Hydrology and Early Warning Systems, in January 2000, and submitted to the European Commission to consider financing. Upon request of the European Commission, Terms of Reference have been finalized to elaborate the project document and main project is expected to commence in 2002/2003.

4. **Background:** The Intergovernmental Authority on Development (IGAD) is an international institution grouping Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda having as its long-term goal the attainment of sustainable economic development for its member countries. A number of serious droughts have affected the region in the last decades, with dramatic human, economic and ecological consequences. It is foreseen that by 2015 all the countries in the region will experience severe water shortages.

   While demand for water is increasing throughout the region, growing pollution and possible impacts of climate change and variability are likely to further reduce the quantity of water of suitable quality. In these circumstances, planners and decision-makers must achieve new levels of integration, reliability, and acceptance. This calls for timely, accurate and comprehensive information about the status of water resources and for complementary information about the economic, social and environmental dimensions of water use.

   Unfortunately, the systems for collecting and managing water-resources related information in the region are inadequate, and often are deteriorating, precisely at a time when there is an increase in the demand for such information for regional cooperation in the assessment and management of water resources.

In response to a request from the IGAD Secretariat and with financial assistance from the European Unit (EU), the World Meteorological Organization (WMO) prepared a project proposal for the IGAD-HYCOS with the following objectives:

- to strengthen the technical and institutional capacities of the National Hydrological Services (NHSs) in collecting and processing hydrological data, to meet the needs of their end-users regarding information on the status and trend of water resources;

- to support the NHSs in enhancing the development and operation of adequate hydrological observation networks, in order to provide information of a consistent quality, transmitted in real time or near-real time as required to national databases and regional information systems.

- to facilitate and promote the exchange and use of water-resources data and information, using modern information technology, including the Internet.

Following submission to EC for possible financing, it was agreed to prepare an elaborated project document in order to establish more securely the project's sustainability and long-term usefulness. The project will thus have two phases: detailed project elaboration and implementation phases. Upon full development, the project will be integrated with the WMO initiated World Hydrological Cycle Observing System (WHYCOS).

5. **Project Objectives:** The IGAD–HYCOS project, will serve the three main purposes to accomplish an overall objective of developing national and regional capacity in the field of water resources monitoring, assessment and management; namely:

- Assist the participating countries in developing their own national capacities in these fields and thus allow them to fully participate in and benefit from the project;

- Provide IGAD countries with one of the necessary tools (i.e. a water resources information system) for the sustainable development of regional integrated water resources monitoring, assessment and management;

- Collaborate with other national, regional and international projects and programs to

modernize, rationalize and improve efficiency, cost effectiveness and sustainability of water resources information systems in the IGAD Region and at international levels.

The main beneficiaries will be the general population as well as sector stakeholders of each country who will benefit from improvement of the real-time observation network and data transmission and reception capability. Other benefits include development of a regional water resources information system as a decision-making tool for water management, generating mutually acceptable hydrological products for both national and regional applications and continuing training of staff.

6. **Project Description:** The project will be implemented in two phases:

Phase 1: identification of scope, preparation of a project document which will include detailed design and budget; and

Phase 2: project Implementation

Phase 1 will focus on the development of a detailed project document including number, location and identification of stations, type of measurements required by the National Hydrological Organizations, the equipment issues (functional and technical specifications), detailed costing (including national contributions and operational costs), training needs, identification of the Pilot Regional Center (PRC), preparation of tender documents as well as the actual preparation of the financing proposal itself. During this period a realistic implementation period will be established. Phase 1 will be implemented in three stages:

Stage 1: covers gathering and analysis of information on the status of hydrological activities in each country and design of hydrological network, types of measurements required by National Hydrological Organizations, equipment (functional and technical specifications), detailed costing (including national contributions and operational costs), training needs, criteria for identification and facilities to be provided for selecting the PRC,

Stage 2: will be devoted to the organization of a regional workshop to present outline of the project document and to agree on the format to be followed in finalizing the document. Finally,

Stage 3: will be dedicated to the finalization of the detailed comprehensive project document for the IGAD-HYCOS for potential funding. The project document will include annexes containing: work program (WP), equipment specifications and description, tender dossiers for supplies and services, recommendation for the location of PRC and a possible memorandum of understanding for the institution and country hosting it and draft financing proposal.

Phase 2 will focus on the actions required to improve the network of hydrological observing stations, further development of the sub-regional and national water resources information systems, identification and development of hydrological products of regional interest, and training and awareness building. The activities under this component will be elaborated under Phase 1.

7. **Project Cost Estimates:** The project cost is estimated at US$ 2.1 million.

Summary Cost Estimates		
	Components	**Costs (US$ millon)**
1.	Project detailed documentation	0.100
2.	Rehabilitation and construction of Data Collection Platforms	1.300
3.	Information management training	0.700
	Total	2.100

8. **Possible Financiers and Indicative Financing Plan:** EU has been approached for possible financing.

9. **Project Implementation:** A technical committee comprising of members representing the National Hydrological Services (NHSs) will be responsible for overseeing and technical approval of the project. WMO as the custodian of the WHYCOS will act the supervising agency, providing critical technical service to guide IGAD Secretariat, NHSs and the PRC on the implementation of the project. The project will be implemented within a period of 12 weeks for Phase 1, and 3 years for Phase 2. NHSs will be responsible for the up-keep and operation of hydrological equipment. A Pilot Regional Center (PRC) will be identified in Phase 1 to organize database and provide the data and information requirements of users.

10. **Project Benefits:** The primary benefit of the project is to facilitate availability and

dissemination of improved and reliable water resources data and information essential for regional and national water resources management. The beneficiaries of the project include NHSs, water sector organizations, river basin organizations, PRC, various organizations involved in water related projects as well as people living in flood prone, drought or irrigated areas.

11. **Project Justifications:** The project will facilitate the improved and reliable water resources data and information availability and dissemination for regional and national water resources management. The project will also provide an enabling environment for policy development, and support for emergency preparedness and vulnerability assessment in addition to providing basic information needed for the development of adaptive strategies and actions in response to adverse effects of climate change on poverty reduction, food security, environmental protection and socio-economic development. Sustainability of the project after implementation will be ensured through the participatory planning of the project, requiring member NHS to commit themselves to take over of the DCPs and ensure recurrent budgets for their operation and upkeep.

12. **Issues and Proposed Action/Way forward:** No issues are identified at this stage. Further issues will be identified during project elaboration. However, such issues are expected to be resolved within the mandate of IGAD.

13. **Proposed Involvement of NEPAD**: This project is selected for NEPAD support as it has the objective of promoting regional cooperation between the National Hydrological Services (NHSs) and to set-up a regional information system on water resources thereby providing fundamental data for all sectors. NEPAD would oversee the commitment by member states to participate in the implementation of the project as well as in the operation and maintenance of the facilities.

STRENGHTENING OF THE NIGER RIVER BASIN AUTHORITY INTER-STATE FORECAST CENTRE (CIP)

1. **Project Name and Location**: The project entitled "Strengthening of the Niger River Basin Authority Inter-state CIP" is closely following the initiatives taken by the Niger River Basin Authority, aimed at improving basic water resources. The project concerns the nine member countries of the River Basin Authority, namely: Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Guinea, Mali, Nigeria and Chad.

2. **Sponsor(s):** The project is initiated by the Niger River Basin Authority (NRBA).

3. **Current Status**: The NRBA manages 64 hydrological data collection platforms. Measurements and observations collected are transmitted via the ARGOS satellite to the Inter-State Forecasting Centre based in Niamey, capital of the Republic of Niger. Considering the dilapidated state of these installations as well as maintenance problems, measures have been taken by the NRBA to replace the existing system with the modern METEOSAT system presently used on several projects such as GENIS and WHYCOS. A number of member countries, Guinea, Mali, Cameroon have commenced the modernisation of their installations from domestic resources or within the framework of bilateral financing and other types of financing as Nigeria is prepared to do.

4. **Background:** The Niger River Basin Authority (NRBA) currently operates 64 platforms for collection of hydrological data, located in eight member states along the river. Most of these installations were set up as far back as 1984 by the NRBA under the HYDRONIGER project with the assistance of the World Meteorological Organisation. HYDRONIGER installations were set up in two stages a) 1980-1986: Construction of buildings of the regional and national centres, setting up of a hydrological data collection system in real time, elaboration of forecasting models, procurement of equipment and supplies, personnel training, and b) 1987-1991: Putting in place of a data bank, elaboration and dissemination of forecasts. Data transmitted by satellite are received at the HYDRONIGER Inter-State Forecasting Centre and by the various national forecasting centres. The present system modelled on the ARGOS satellite is being abandoned because of obsolete equipment and lack of spare parts. In view of the foregoing, the NRBA has prepared a programme seeking to modernize its equipment and capacity building for the Inter-State Forecasting Centre – HYDRO-NIGER.

5. **Project Objectives**: The purpose of the project is (i) to modernize the HYDRONIGER forecasting instruments to enable it accomplish its mission in providing hydrological measurements and forecasts; (ii) ensure capacity building; (iii) contribute to the development of an environmental observatory for the Niger basin; and (iv) put in place mechanisms for the valorisation of products and services provided by the Inter-**State Forecasting Centre – HYDRONIGER.**

6. **Project Description**: The project concerns the strengthening of the structures and resources of the HYDRONIGER Regional and National Centres in terms of logistics, observations and communication networks, gauging, camping, functioning, tracking and consultations with the authorities and population of the Niger River Basin. The project comprises the following components: a) Rehabilitation and modernization of data collection platforms; b) Technical assistance (Experts and Consultants); c) Personnel training; d) Procurement of 4x4 vehicles; e) Procurement of computer hardware.

7. **Project Cost Estimates:** The project is estimated at US$ 10 million broken down as follows: Rehabilitation and modernization of platforms (US$5,800,000); Technical Assistance (Experts and Consultants) (US$2,000,000); Training (US$500,000); Procurement of 4x4 vehicles (US$1,200,000); Procurement of computer hardware (US$600,000)

8. **Financing Plan:** Member states of the NRBA will meet 20% of the project's overall cost. Other sources will finance 80% of overall costs.

9. **Project Implementation:** The Niger River Basin Authority will play the role of executing agency with the support of the World Meteorological Organisation. Project Implementation will take 3 years. Project performance indicators are: (i) stations rehabilitated and modernized; (ii) technical assistance provided; (iii) the required number of agents trained; and (iv) computer equipment installed and in running order.

10. **Project Benefits:** The project will help to enhance the hydrological forecasting system of the Niger River Basin and provide useful data and information to national hydrological services to water boards, dams users, water

distributors, to navigation companies and livestock and fishery co-operatives. This project in the service of the public will render important services to the authorities and users of the Niger Basin.

11. **Project Justification:** For the past two decades, the Niger River Basin has been severely affected by drought resulting in a sharp decline of the river flow and its tributaries and culminating in a nol flow in some portions of the river. The objective of HYDRONIGER is to collect hydrological observations and measurements in order to set up a comprehensive data bank, in particular flow and water-level forecasts and upgrade the basin's water management resources. The rehabilitation and modernisation of the system is today critical because of the bad state of equipment and difficulties in their maintenance. The project is justified by the need to strengthen the HYDRONIGER FORECASTING CENTRE to enable it in the future to valorise its services an secure self-financing.

12. **Issues and Proposed Actions**: The requisite actions are set and NRBA has the necessary expertise to implement the project. The risks are relatively low given the full involvement of the States in putting in place a reliable information system on the river basin's water resources.

13. **Role of NEPAD:** Considering that this is an important regional project with the objective to provide capacity building for more effective management of natural resources, NEPAD would provide crucial support for its successful implementation.

STUDY TO IMPROVE FINANCING MECHANISM FOR DEVELOPMENT OF THE WATER SECTOR

1. **Study Name and Location:** The Study is entitled "Study to Improve Financing Mechanism for Development of the Water Sector" and would be applicable to all countries and regions of the continent.

2. **Sponsor(s):** The sponsor of the Study is the African Ministerial Conference on Water (AMCOW) through its Secretariat.

3. **Current Status:** There are increasing calls to establish an African Water Facility (as recently articulated by the "Water and Sustainable Development in Africa: Regional Stakeholders' Conference for Priority Setting", April 2002, Accra, Ghana. The need for enhanced financial base for the water sector was also discussed at the "African Ministerial Conference on Water", (AMCOW) held in Abuja, Nigeria.

4. **Background:** Africa faces serious socio-economic problems that call for urgent remedial action. While access to safe water supply and sanitation services on the average stand at 62% and 45% respectively, the situation is even worse in individual countries. The number of people living below the poverty line is about half of the population. In recognition of these issues, the UN Millennium Assembly decided "to halve, by 2015, the proportion of people living in extreme poverty and to halve the proportion of people who suffer from hunger and are unable to reach or to afford safe drinking water". Along the same line, the Africa Water Vision and Framework for Action call for ensuring adequate water supply for basic requirement, sanitation, food security and other socio-economic development needs and the sustenance of the ecosystem. Substantial investment outlays will be required to meet the challenges of the Millennium declaration and the Africa Water Vision. Preliminary estimates have indicated that over the coming 25 years, US$ 20 billion per annum will be required to meet the minimum condition for water supply (US$ 5m), sanitation and hygiene (US$ 7m), irrigation (US$ 4m), and other uses (US$ 4m). A renewed bold commitment and approach is needed to meet the challenges posed by this daunting task by all stakeholders who stand behind Africa's progress. The bulk of this resource will have to be generated locally from governments, communities and private sector, with the substantive support of the international community. At the national/local level, the implementation of good governance at the forefront of NEPAD's initiatives would be given priority including strengthening the enabling environment for public-private partnership, and community empowerment. At the international level, NEPAD would use its good offices to demonstrate its renewed vision and commitment and win the support of cooperating organizations. The strengthening of financial base to meet the Millennium and Africa Water Vision targets is a medium term action. In the short term, in parallel with supporting the acquisition of financial gaps for identified programs/projects, a study would be commissioned to come up with modalities for the identification and administration of financial mechanism to achieve the Vision and Millennium targets for Africa.

5. **Study Objectives:** The objective of the study is to assess the efficiency and effectiveness of existing financing mechanisms gaps to meet the Millennium and Vision targets of Africa, and propose alternative and/or enhanced financing mechanisms including the (sourcing, allocation and administration) for water development taking into account actions required at local, national, regional and international levels.

6. **Study Description**: The study will have three components:

a) Assessment of the financial requirements. Under this component, the study will assess the financial requirements needed for Africa to meet the Millennium and Vision targets set. This assessment should take into account the sub-sectoral requirements, which include:

- Water supply for basic needs
- Sanitation and hygiene education
- Irrigation and water productivity improvement
- Water for industry, energy and transport
- Flood and drought management
- Knowledge and information
- Awareness and education
- Research and development
- Environmental management

b) Assessment of existing financing mechanisms. The study will assess the existing financing modalities for financing water sector programs and projects including source (public sector, community, private, NGOs, ODAs, etc), the mechanism for administration, the ability to meet current requirements as well as possibilities for financing additional tasks.

c) Modalities for financing medium and long-term tasks. The study will assess the various options available to source financing for the additional tasks, means for enhancing absorbing

capacity, the institutional requirements and necessity for instituting new policies, legislation and regulatory framework. The study will identify modalities for allocation between sub-regions, sub-sectors, programs and criteria for eligibility.

7. **Study Cost Estimate**: The estimated cost of the study is US$ 0.6 million including cost of organizing consultative meetings with major stakeholders.

8. **Possible Financiers and Indicative Financing Plan**: No financiers have yet been identified.

9. **Study Implementation**: NEPAD Secretariat would designate an implementing body once funding is arranged. The implementation of the study will commence with the preparation of detailed terms of reference. Consultants will prepare the detailed studies with completion expected in 9 months.

10. **Study Benefits**: It is believed that the establishment of a dedicated financial arrangement will address the critical issue of the need to provide impetus to the implementation of water resources development through a mechanism that aims at improving existing mechanisms as well as elaboration of new resources for this purpose. The study will thus support the realisation of the Africa Water Vision and Millennium targets.

11. **Study Justification**: The need for improved water management as well as the need for continued large investment in the sector is well taken as enunciated in various forums. Furthermore, rapid population growth and movement will place additional pressure on existing infrastructure, and on pollution levels. The Accra Declaration recommended the setting up of a an *African Water Facility* in view of the large backlog of infrastructure works and the inadequacy of existing local as well as international financial mechanisms. The study will address this issue and come up with recommendations for ways and means of maximizing local resources (including gains from increased efficiency, pro-poor cost recovery mechanisms, budgetary process, etc), as well as enhanced support from Africa's development partners. Such a study will contribute towards a consensus on the opportunities of meeting the Millennium as well as Vision targets.

12. **Issues and Proposed Action**: In order to reflect the conditions prevailing in various countries, assessment will be conducted in selected countries representing the regions. The findings will be reviewed at regional levels and finally at continental level. It is important that wide consultations and participatory approach be employed. The sub-sectors that will be given priority include: water resources management, water supply and sanitation, water for agriculture and hydropower.

13. **Involvement of NEPAD:** NEPAD would promote the need for each country to exhaustively investigate and maximize the mechanism and sourcing of finance internally including through the budgetary process. Due to its crosscutting nature, NEPAD would also advocate the need to give due priority and renewed commitment to water development by the international development partners.

APPENDIX 4
PROJECT BRIEFS AND PROFILES
TRANSPORT SECTOR

FACILITATION OF ROAD TRANSIT TRANSPORT

1. **Name and Location: Facilitation of Road Transit Transport.** - Construction of adjacent (one-stop).; -Establishment of regional observatories. Location: Road corridors in West Africa and Central Africa.

2. **Sponsors:** ECOWAS, West African Economic and Monetary Union (UEMOA) and the countries concerned.

3. **Background**: The observatory is a tool designed by the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) to regularly monitor irregular practices along the inter-state road links. A pilot project has already been undertaken at the initiative of the West African Enterprise Network (WAEN) and supported by the West African Forum (WAF). Côte d'Ivoire has just set up an observatory involving a partnership between the administration and private operators.

   The regional road programme prepared by UEMOA includes the establishment of adjacent (one-stop) boarder posts starting with the pilot posts at the borders of Cote d'Ivoire and Burkina Faso on the one hand and of Togo and Burkina Faso on the other. The serious transit problems on the Douala-Chad and Douala-Central Africa Republic routes as well as corrective actions to be taken were reviewed by an ECA workshops in 2001.

4. **Project Objective:** The objective of the construction of adjacent border posts is to facilitate and coordinate customs control, the verification of vehicles and drivers and to facilitate the use of harmonised documents. The mission of observatories is to identify, analyze and regularly publish the irregular practices and abuses by the administration along the transit routes serving the corridors of West and Central Africa.

5. **Project Description:** The project provides for construction and equipping about twenty adjacent border posts in the two sub-regions. The pilot programme on observatories of abnormal practices will be implemented on the major road links: (i) Abidjan-Ouaga-Niamey and Abidjan-Accra-Lomé-Ouaga for West Africa; (ii) Douala-Ndjamena-Bangui for Central Africa.

6. **Project Cost :** The project is estimated at 20 million US dollars. Period of implementation : 2003-2005.

7. **Source of Financing:** UEMOA/ECOWAS: World Bank and European Union; ECCAS: To be requested from the same organisations after the detailed definition of the project.

8. **Project Benefits:** Construction of a border post on a single site presents certain advantages compared to two sites on either side of the border, and would decrease the time required for crossing the border by 50%. The observatories will lead to a reduction of the controls and fees, which will reduce transit times and costs and will improve security. Increase the rapidity and fluidity of transit transport on the corridors. A greater integration of the economies concerned.

9. **Action Plan for Project Implementation:** a) UEMOA/ECOWAS: Pilot observatory already in place: the programme for setting up additional observatories to be defined. b) ECCAS: Programme to be defined taking into account the ECOWAS experience.

10. **Support of NEPAD**: a) At the Political Level: Obtain the political will to end illegal control and develop the collaboration necessary for the establishment and operation of adjacent border posts. b) Facilitate the mobilisation of resources for the ECCAS programme; c) Promote the exchange of experiences on facilitation programmes.

IMPLEMENTATION OF OVERLOAD CONTROL ALONG ROAD CORRIDORS

1) **Project Name and Location**: Implementation of **overload control along road corridors**.

2) **Sponsors:** SADC, COMESA, UEMOA, ECOWAS, IGAD and ECCAS.

3) **Background Status:** The prevalence of extensive vehicle overloading on the African roads contributes to the early breakdown of roads and the very high maintenance and rehabilitation costs. The damage to road pavement increases exponentially of the standard axles limit. Aging bridges and culverts along road corridors have load limits that are close to the weight of large articulated trailers trucks. Overloaded trucks are a safety hazard.

   SADC has established a model enabling legal reform package including: a regional MOU on the approach for effective overload control of vehicle overloading, and a model legislative provisions for implementation of the MOU by member states. SADC has also established a methodology of calculating the deterrent fines. Countries have agreed and are implementing measures to institutive administrative procedure, involving paying stiff deterrent fines on the spot, as opposed to the lengthy judicial process. The management of weighbridges is also being improved. Countries have also updated and in most cases harmonized their regulations concerning the limitations on vehicle weights and axle loads. Enforcement has, however, been problematic due, *inter-alia*, to lack of appropriate legal and regulatory instruments and capacity.

   Furthermore, fines charged for overloading and methods of settling the fines also vary from one country to another. A few countries have registered significant progress in particular Kenya, South Africa, Tanzania, Zambia, Zimbabwe and South Africa. Some countries have involved the truckers' association in the enforcement campaign with some notable success. Overload control needs to be coordinated between countries along transit corridors. The present brief regroup distinct programs to be undertaken by the relevant REC . The program would also support exchanges between the RECs on good practices and equipment.

4) **Project Objective:** a) To harmonize the measures, procedures and regulations regarding vehicle overloading control in Africans' sub-regions and facilitate the flow of traffic. b) To review equipment specifications and recommend guideline for standardization in the various sub-regions.

5) **Project Description**

- Analysis of the legal texts and regulations governing the control of axle load limits available in the member states;
- Identification of eventual differences arising from the various legal texts relating to the modalities of implementation of axle load, controls in the various sub-region;
- Assisting in the review and improvement of existing traffic regulations by member states (designed to be upgraded to regional legal instrument), building on the SADC model;
- Determination of rational methodology for harmonizing overload fines and modalities for collection on the basis of existing or emerging best practices;
- Analysis of the current practices of weighbridges management;
- Preparation of guidelines for better management of weighbridges, including modalities for possible introducing operation of weighbridges by the private sector;
- Exploration and facilitating the introduction of joint weighbridge operations at border posts as an integral part of the one stop border post proposal; and
- Organization of the training workshops.

6) **Project Cost**: Estimate Project cost: US$ 5 million; Period of execution: 2003 – 2006.

7) **Project Implementation**: The RECs should, under the NEPAD framework, designate a coordinating body to help in project planning, coordination and facilitating exchange of experience and best practice by analysing, publishing and disseminating the results. The RECs should determine the main trade corridors, at least two, along which the project will be implemented.

8) **Project Justification and Benefits:** The project will help REC's and countries road authorities to improve their approach to overload control. Improved overload control will eventually contribute to the preservation of road pavements and to enhanced safety. The economic return on effective overload control is very high.

9) **Issues and Proposed Action**: The RECs would need to review options for technical coordination and analysis and draw up detailed project proposals, including respective implementation action plans. Coordination among RECs should be established within the

framework to be established for coordinating NEPAD transport programmes.

10) **Involvement of NEPAD**: At the political level: to obtain and sustain commitment to overload control. To help in mobilizing technical and financial support for the full participation of the RECs and key public and private sector stakeholders.

COMESA/SADC UNIFORM CUSTOM DOCUMENT AND BOND GUARANTEE SCHEME

1) **Project Name and Location:** Implementing COMESA/SADC Uniform Custom Document and Bond Guarantee Scheme; Location: main transit corridors in Eastern and Southern Africa.

2) **Sponsors**: Eastern Africa: EAC, Northern Corridor Transit Transport Coordination Authority (NC-TTCA), COMESA, Corridor Countries; Southern Africa: SADC, COMESA, Corridor countries.

3) **Background Status**: The COMESA, EAC and SADC have agreed to implement a harmonized Customs Document that will replace individual country documents currently in use along transit corridors. The agreed format has been determined after extensive consultations between the stakeholders concerned, from both public and private sector.

   The countries have also agreed to implement a bond security guarantee scheme that will obviate the need for depositing bonds in each country for a particular transit operation. The system will reduce the amount of money paid to secure the bonds, simplify the procedures for transit operations and eliminate the need for physical presentation of the custom exit certificate for release of the bond.

4) **Project Objectives**: To provide advisory services and technical support to stakeholders concerned to implement the CD and Bond guarantee scheme along the selected corridors.

5) **Project Description**: The program will provide short-term experts and financial support to facilitate stakeholder consultations and consensus building on: action planning; acquisition of materials (e.g. printing of documents); training supervising implementation; producing and disseminating manuals; establishing a monitoring system to asses progress and impact.

6) **Project Cost:** US$3 million for at least four corridors; Period of execution: 2003 – 2005

7) **Possible Financiers/Indicative Financing Plan:** Development partners (some of those already active in this are USAID, EC, World Bank, AfDB) with some contribution from the countries and private sector stakeholders concerned.

8) **Implementation Responsibilities:** Corridor coordination units/organizations (e.g. NC Secretariat) supported by Governments concerned, stakeholders forum members, and RECs (EAC, SADC and COMESA).

9) **Project Benefits:** Reducing transit times and cost. Improve trade operations of countries concerned.

10) **Project Justification:** Project provides response to one of the major challenge in improving transit operations and reducing cost along main trade corridors. The introduction of the uniform custom document and of the bond scheme are necessary for the next level in transit facilitation, that is the shift to EDI (electronic data interchange) and eventually paperless transit.

11) **Issues and Proposed Action**: To mobilize finance and establishment delivery mechanism: Sponsors to make necessary preparation and applications. To select the corridors and mobilize the governments and stakeholders concerned: Sponsors to take action, with project finance support from cooperating partners, when available.

12) **Involvement of NEPAD:** a) At the policy level to obtain the commitment of governments and especially the custom agencies; b) To assist in mobilizing finance.

STRENGTHENING TAKEHOLDERS ASSOCIATIONS FOR TRADE FACILITATION

1) **Project:** Sterngthening Stakeholders Associations for Trade Facilitation

2) **Sponsors:** Eastern Africa: Associations, EAC, Northern Corridor Transit Transport Coordination Authority (NC-TTCA), COMESA, Corridor Countries; Southern Africa: Associations, SADC, COMESA, Corridor countries; West Africa: Associations, ECOWAS, countries concerned; The Horn: Associations, IGAD, countries concerned; and Central Africa: Associations, ECCAS, countries concerned.

3) **Background Status**: The private sector is not adequately represented or involved in policies and programs for the improvement of transit/transport operations. Yet the private organizations are the main operators along corridors. They have detailed knowledge and have a critical role in the practical implementation of policies and programs.

   There is a growing trend to increase the participation and involvement of the private sector in many corridors. In some cases, particularly the Northern Corridor, the private sector is fully involved in the stakeholders' forum, which is instrumental to the fundamental practical changes that are being implemented to improve transit operations at the port of Mombasa and along the corridor.

   The private sector has, mainly through national and sub-regional associations, expressed a need for better organization and strengthening to be able to make stronger cases and impact. It needs a mechanism to harness the views of the many private operators and interests, make a stronger input and lobbying, and provide timely feedback to the members of respective associations. Examples of national and sub-regional associations that have emerged include the clearing and forwarding associations, freight transport operators associations, shippers councils and chambers of commerce. Most of them are nascent and need extra resources to build their capacity so as to be self-sustaining.

4) **Project Objectives:** To provide advisory services and technical support to private sector associations and stakeholders forums along the selected corridors.

5) **Project Description:** The program will provide short-term experts and financial support to associations to facilitate: establishing association/forum agenda to meet transit challenges; result oriented business planning; better analytical and technical input to meetings and workshops; establishing benchmarks and targets; strengthening operations and lobbying functions; assigning responsibilities and monitoring implementation; and producing and disseminating manuals.

6) **Project Cost:** Estimated at USS$ 8 million for at least 10 corridors in West, Central, Southern, Eastern and North-Eastern Africa. Period of execution: 2003-2006.

7) **Possible Financiers/Indicative Financing Plan**: Development partners (some of the already active partners are USAID and World Bank/PPIAF), with contribution from the countries and private sector stakeholders concerned.

8) **Implementation Responsibilities:** Corridor coordination units/organizations (e.g. NC Secretariat) supported by Governments concerned, stakeholders forum members, and RECs (ECOWAS, ECCAS, COMESA, EAC, SADC, IGAD).

9) **Project Justification and Benefits**: Project provides response to challenge of increased involvement and participation of the private sector, with a view to accelerating reforms and improving transit operations. The benefits of the project will be: a) faster implementation of reforms and resolution of the transit facilitation problems and challenges, through stronger public-private sector initiative and actions; b) creation of a better environment for trade and business operations; and c) reduction of costs and delays along main trade corridors.

10) **Issues and Proposed Action**: To assess situation, determine needs and prepare specific financial requests, and mobilize finance: Sponsors to prepare proposals and requests. To identify drivers among private sector members/associations and implement targeted projects with existing or new associations/forums: Sponsors to take action, with project finance support from cooperating partners, when available.

11) **Role of NEPAD**: To secure political action when necessary, particularly in regard to bilateral, multilateral and regional action. To assist in mobilizing finance and technical support.

ESTABLISHING ONE-STOP BORDER POSTS

1) **Project Name and Location:** Establishing one-stop border posts. Location: Northern (Mombasa) Corridor, Beira Corridor and the Dar es Salaam to Zambia and Malawi Corridor.

2) **Sponsors**: Northern Corridor Transit Transport Coordination Authority (NC-TTCA), SADC, COMESA and Corridor Countries.

3) **Background:** Double inspection and clearance of traffic by two sets of authorities at a shared common border is a major contributor to the long delays experienced at borders. In Southern Africa, delays at borders are estimated to cost between US$ 48 – 60 million per year.

   The Eastern and Southern Africa countries have agreed to implement, among other facilitation measures, the transformation of the border operations from two stops to a one-stop operation. This would require that all vehicles and persons stop only at facilities in the country they are entering, with all exit and entrance processing being done at that location, by respective officials of the two countries concerned. They have also agreed in principle to establish, where possible, one common facility, which may be developed and/or managed by the private sector.

   To facilitate implementation, SADC has agreed on a model border post reform package comprising: a regional MOU on how to reduce delays at borders; model legislative provisions (MLP) to enable the member states to implement the MOU; and a model bilateral agreement on the operation and management of a common border post as a one-stop operation.

   A pilot project is being implemented along the Trans-Kalahari Corridor. Countries in the selected corridor countries have agreed to implement the border post reforms, building on the results of the pilot project.

4) **Project Objectives:** To provide advisory services and technical support to stakeholders concerned to implement the one-stop border posts along the selected corridors.

5) **Project Description**: The programme will provide short-term experts and financial support to facilitate stakeholder consultations and consensus building on: action planning; signing of an agreement or MOU between the countries concerned; review of relevant legislation and regulations; training of relevant staff; supervising implementation; producing and disseminating manuals; establishing a monitoring system to asses progress and impact.

6) **Project Cost:** Estimated US$ 2 million for the three corridors. Period of execution: 2003 – 2006

7) **Possible Financiers/Indicative Financing Plan:** Development partners (some of the already active partners in this process are USAID, EC, and AfDB) with some contribution from the countries and private sector stakeholders concerned.

8) **Implementation Responsibilities**: Corridor coordination units/organizations (e.g. NC Secretariat) supported by Governments concerned, stakeholders forum members, and RECs (EAC, SADC and COMESA)

9) **Project Benefits**: Reducing border delays and, hence, transit times and cost; and thus improving trade operations of countries concerned.

10) **Project Justification:** Project provides response to Africa's major challenge of improving transit operations and reducing cost along main trade corridors.

11) **Issues and Proposed Action**: To mobilize finance and establishment delivery mechanism: Sponsors to make necessary preparation and applications. To mobilise the governments and stakeholders concerned along the corridors concerned: Sponsors to take action, with project finance support from cooperating partners.

12) **Involvement of NEPAD:** To assist in mobilizing finance and securing political action when necessary, particularly in regard to concluding bilateral or multilateral agreements or MOUs.

INSTITUTIONAL SUPPORT FOR THE CONCESIONING OF THE RAILWAYS

1. Name and Location: **Institutional support for the concesioning of the railways** of Kenya, Uganda, Tanzania, TAZARA (Tanzania-Zambia) and Swaziland.

2. **Sponsor:** EAC and SADC

3. **Background**: In the last decade, railways have seen a decline in their activities in spite of the considerable investments made in terms of rehabilitation. To reverse this trend, the different countries have laid down strategies based on the following elements: a) Restructuring of sectoral ministries by the definition of expertise at different levels of the administration and creation of regulatory bodies; b) Promotion of private sector participation through the withdrawal of the state from activities of operational and commercial nature to focusing on the leading role of regulation and; and c) The increase of available resources for the sector through privatisation.

   To date, a number of activities geared towards the implementation of this strategy have been initiated, at this stage however, there is the need for institutional support to successfully conclude the concesioning process of the different existing railways.

4. **Project Objective:** The sectoral objective is to support economic growth. Specifically, the project aims at improving the efficiency of rail transport.

5. **Description:** The institutional support project includes the following components: Formulation of a concesioning strategy; Creation of a regulatory body; and Financing of a transaction advisor to steer the operation.

6. **Project Cost:** Based on similar operations carried out in other countries in the sub-region, the estimated cost is 10 million US dollars. Period of implementation: 2003-2005

7. Financing/Indicative Financing Plan: The financing of this technical assistance could be part of a wider framework of support to sectoral reforms. The estimated amount of 10 million should be mobilised in 2 to 3 years.

8. **Executing Agency**: The project will be implemented by each railway company and country concerned.

9. **Project Benefits:** The conclusion of the concession is justified by (i) a reduction of costs arising from the full use of the competitive advantages of rail transport; (ii) an enhanced regional integration between the different countries; and (iii) an increase in earnings following the concession.

10. **Problems and Measures**: There are no major risks linked to project implementation. The various governments have shown their commitment to reforms. The immediate step is to mobilise resources to initiate strategy formulation.

11. **Role of NEPAD**: Beyond the action of resource mobilisation which remains the main function, NEPAD could in the case of the TAZARA railway encourage joint concesioning.

REHABILITATION OF SELECTED EAST AFRICAN AND SADC RAILWAYS

1) Name and Location: Rehabilitation of selected East African and SADC railways in support of concessioning.

2) **Sponsors**: Uganda, Kenya, Tanzania and Mozambique, supported by the EAC and SADC.

3) **Project Objective:** The project's sectoral objectives is to support the countries' economic recovery and the specific objective is to enhance efficiency of the railways concerned through public and private partnership

4) **Background:** As part of institutional reforms, Kenya, Uganda, Tanzania and Mozambique have agreed to enhance the efficiency of their respective railways through concessioning. The general approach is to leave infrastructure in the hands of the governments and concession operations to the private sector. The process includes the requirement for complementary rehabilitation of existing infrastructure.

5) **Project Description and Costs**

		US$ million
Uganda	Partial rehabilitation of the Malaba-Kampala line (250 km) Rehabilitation of the Port Bell-Kampala section Rehabilitation of the Port Bell and Jinja terminals	60.0
Kenya	Rehabilitation of the Nakuru-Kisumu section	13.0
Tanzania	Rehabilitation of the Dodoma-Tabora-Mwanza section	68.0
Mozambique	Rehabilitation of 77 kms of the Nacala corridor	30.0
	Total	171.0

6) **Financing Plan:** Fund mobilisation is urgent in order to support the ongoing reform process. Financing is expected from development partners and countries concerned.

7) **Executing Agency**: The countries concerned (Kenya, Uganda, Tanzania and Mozambique) will implement the project, supported by the EAC and SADC.

8) **Benefits:** The expected most important benefits are: i) The reduction of transport costs through the best use of rail transport competitive edge; ii) Furtherance of integration between the three countries; and iii) Increased state income due to concessioning and reduction of financial deficit.

9) **Problems and Recommended Measures**: The three countries have shown political will to complete the sectoral reforms and have advanced in the concessioning process. The immediate step would be to complete this process in order to create a beneficial public-private partnership. As regards the project, the next step would be to mobilise finance for implementation.

10) **The Role of NEPAD**: NEPAD could assist in fund mobilisation for the rehabilitation of the railways.

RAILWAY INTER-CONNECTION FEASIBILITY STUDY FOR ECOWAS COUNTRIES

1) **Name and Location:** Railway Inter-connection feasibility study for ECOWAS countries.

2) **Sponsor**: ECOWAS

3) **Background:** Aware of the role of infrastructure in the regional integration of the 15 ECOWAS countries, the latter requested in 1992 for the assistance from the Economic Commission of Africa to prepare a railroad master-plan. Pursuant to the recommendations of the master-plan, ECOWAS made a request to the African Development Bank to conduct a feasibility study. The terms of reference of this study are being prepared.

4) **Objective:** The study's sectoral objective is to support economic growth and regional integration in ECOWAS member countries. The study seeks to determine the economic viability of projects for connecting 12 existing railways in the sub-region.

5) **Description of the Study:** The study will be carried out in one phase and will consist of the following steps: a) review of existing lines: routes, communications, control, rolling stock, capacity, etc.; b) review of existing studies concerning interconnection projects and updating of costs estimates and estimation of missing links not yet studies using maps; c) Study of the traffic flow (future and existing): regional demand, diverted traffic, generated traffic (mines, agriculture, grain, cement, steel, containers, etc) and options particularly concerning port capacities; d) Definition of different inter-connection projects and projection of traffic using phasing option; definition of traffic thresholds for attaining viability; and e) Comparison of inter-connection scenarios and calculation of viability in comparison with road links on the basis of total economic costs and benefits, including investments in road projects (taking into account the UEMOA/ECOWAS road programme).

6) **Cost of Study**: The estimated cost of the study is 3 million US dollars and will be implemented in twelve months from the end of 2002.

7) **Financing:** The African Development Bank is preparing the terms of reference. The grant proposal will be presented to the Bank's Board of Directors during the second half of 2002.

8) **Executing Agency:** The study will be implemented by the ECOWAS Secretariat assisted by a Monitoring Committee.

9) **Project justification:** The study determine the viability of rail options across different horizons and will facilitate the planning of the development of the regional network taking into account the potential role that railways can play. The data from the study will also allow a better appreciation of the potential of collaboration between modes and existing networks.

10) **Measures to be Taken:** Follow up grant approval by ADB. Coordinate this study with the NEPAD long term perspectives study.

11) **Support of NEPAD:** Other than the assistance it will provide in resource mobilisation, NEPAD could encourage the harmonisation of related policies in this area with the view to achieving coordinated concessions.

PRE-FEASIBILITY STUDY ON RAILWAYS INTER-CONNECTION IN ECCAS

1) **Name and Location:** Pre-feasibility study on railways inter-connection in ECCAS (Economic Community of Central African Stages).

2) **Sponsors:** ECCAS

3) **Background:** The railways of ECCAS were developed as single un-connected penetration lines. The CFCO (Congo) and the CFMK (DRC) were developed to join the river network of Congo-Ubangui beyond Malebo. The most recently constructed railway in Gabon links with the Franceville mine and penetrates the forest region. The CFCO and CFMK operate independently. It would be useful from the perspective of integration of the economies of the sub-region to study the opportunities offered by operational links between the different railways.

4) **Objectives:** The objective of the study is to determine the economic feasibility and viability of inter-connection between different railways of the sub-region. A more specific objective is to study the options for coordinated management of traffic flows between the two cities of Kinshasa and Brazzaville on one hand and the Atlantic ports on the other with the possible reduction of transport costs and rationalisation of port, railway and road investments.

5) **Description of the Study:** The study will consist of the following steps: a) review of existing lines: routes, communications, control, rolling stock, capacity etc.; b) review of existing studies concerning interconnection projects and updating of cost estimates and estimation of missing links not yet studied using maps; c) Study of the traffic flow (future and existing): regional demand, diverted traffic, generated traffic (mines, agriculture grain cement, steel, containers etc.) and options particularly concerning port capacities; d) Definition of different inter-connection projects and projection of traffic using phasing options; definition of traffic thresholds for attaining viability; e) Comparison of inter-connection scenarios and calculation of viability, taking into account road links, and on the basis of total economic costs and benefits, including port and road investments; and f) Comparison of traffic distribution scenarios from DRC and Brazzaville between the two railways of CFMK and CFCO with the rail/road bridge between the two cities.

6) **Cost of the Study:** Estimated costs based on the similar ECOWAS study will be about 3 million US dollars for a period of 2 years.

7) **Financing of the Study:** To date, no funds have been mobilised. Financing will be sought from development partners.

8) **Executing Agency:** The study will be implemented by the ECCAS Secretariat assisted by a Monitoring Committee.

9) **Expected Benefits:** The study will determine the viability of rail options across different horizons and will facilitate the planning of the development of the regional network taking into account the potential role that railways can play. The data from the study will also allow a better appreciation of the potential of collaboration between modes and existing networks in particular with regard to coordinated operation o the rail links between the pool Malebo and the Atlantic Ocean.

10) **Support by NEPAD:** The role of NEPAD will be to assist in mobilising finance for the study and for following up implementation of the proposed projects arising from the study, including recommendations on the coordination of the operation of existing railways and the development of multi-modal services between the Atlantic Ocean and the Congo-Ubangui river network.

FEASIBILITY STUDY FOR THE RAIL/ROAD BRIDGE BETWEEN KINSHASA AND BRAZZAVILLE

1) **Name and Location:** Feasibility study for the rail/road bridge between Kinshasa and Brazzaville in Congo and DRC

2) **Sponsor:** ECCAS, Congo and DRC

3) **Present Situation:** Presently, the link between both capitals is by ferryboats and lighters. Traffic across the Congo River has been on the increase in proportion with the population growth in Kinshasa and Brazzaville, so much so that to-date transport facilities do not meet the demand. The two railways and roads linking the two cities with the Atlantic Ocean have up to now not been linked although they serve the same hinterland, the vast Congo basic.

4) **Objective:** To facilitate (rapidity and reliability of) the links between the two cities, which have populations of 5 and 1.2 millions respectively. To open the possibility of developing multi-modal services towards the river network and the Atlantic Ocean in particular between Kinshasa and the Port of Pointe-Noire.

5) **Description of the Study:** Studies will be undertaken for the construction of a rail/road bridge linking Kinshasa to Brazzaville on the Congo River. These studies will take account the expected evolution of demand over a fifty-year period. The study will in particular examine the options for crossing the river downstream from the pool Malebo in the area of rapids. The study will also cover the rail and road links on either side of the river.

6) **Cost of Study:** The cost of the study is estimated at US$1million. Duration of implementation:2003-2004

7) **Benefits:** Better access by DRC to Port Pointe-Noire; Increased economic integration between Congo and DRC and diversification of access to the sea from the two cities and the Congo-Ubangui river network.

8) **Justification:** In view of the fact that both countries intend to rehabilitate their transport system, a recovery of national economic activities can be envisaged. The bridge rail/road study to be undertaken will help to speed up trade between the countries and, for DRC, with the rest of the world.

9) **Support by NEPAD:** NEPAD could assist the ECCAS, Congo and the DRC in mobilising resources necessary to conduct these studies.

FEASIBILITY STUDY OF THE TRANS MAGHREB RAILWAY

1) **Name and Location:** Feasibility study of the trans Maghreb Railway. The project concerns Morocco, Algeria and Tunisia.

2) **Sponsors:** The study will be conducted under the Arab Maghreb Union (UMA)

3) **Background of Study:** Since the signing of the treaty establishing UMA, member countries have, in the transport sector, been striving to harmonise their regulations and set up infrastructure aimed at developing trade. In this regards, a number of important regional projects have been earmarked for implementation as a priority. The trans Maghreb rail-link pre-feasibility study is one of these priorities. Linking the large towns with the capitals of Morocco, Algeria and Tunisia, the project is of sub-regional scope. It is also part of the Mediterranean network.

4) **Objective:** The sectoral objective is to foster integration between the Maghreb countries and those of the European Union. The purpose of the study is to determine the economic and financial viability of a high-speed rail link between Tripoli and Casablanca.

5) **Description of the Study:** This will be a technical and economic pre-feasibility study consisting of (i) the definition of the corridor; and (ii) the drawing up of a long-term adjustable implementation programme with an implementation schedule.

6) **Costs:** The cost of the study is estimated at US$ 3 million. Duration of implementation:2003-2004

7) **Executing Agency:** The study could be implemented by the UMA whose experts will be assisted by a three-country Monitoring Committee.

8) **Project Benefits:** The study is justified with the framework of Maghreb regional integration as well as in the future perspective of association with the European Union.

9) **Support by NEPAD:** Assist the UMA countries to mobilise the required financing.

CONTAINER HANDLING FACILITIES AT THE PORT OF MOMBASA (KENYA)

1) **Project Name and Location:** Expansion and Upgrading of Container Handling Facilities at the Port of Mombasa (Kenya)

2) **Sponsors:** Kenya Government and the Kenya Ports Authority (KPA)

3) **Background/Current Status:** The port of Mombasa is Kenya's main seaport and serves most East and Central African countries including Uganda, Rwanda, Burundi, DRC, Ethiopia, Southern Sudan, northeastern Tanzania and Somalia. It has a rated annual capacity of 22 million tons. The port has 21 berths, 2 bulk oil jetties and dry bulk wharves. In addition, the port has specialized facilities including cold storage and warehousing, and its container terminal is one of the best equipped in the region. Container traffic through the port has been steadily rising and the terminal has now reached its full capacity of 250,000 TEUS per annum.

   The Government of Kenya intends to launch the process of privatizing the Kenya Ports Authority, in which the KPA would retain ownership of the basic infrastructure and be responsible for core services such as berthing cargo storage services and port administration. Non-core activities such as conventional cargo berths, ship repair, shore equipment, and tugboats will be leased to private operators. KPA is considering systematic redevelopment of the old underutilized conventional berths to attract and accommodate new forms of business.

4) **Project Objective:** To improve the performance and efficiency of the regional port.

5) **Project Description:** To respond to increased needs at KPA, additional capacity would be created. Priority projects include conversion of general cargo berths into container handling facilities. Other projects include development of new container handling berths at the light wharf site, provision of additional port equipment, restructure KPA and privatize some of its operation.

6) **Project Cost:** Estimated Cost :US$ 66 million; Period of execution:2003 – 2006

7) **Possible Financers/Indication Financing Plan:**Government of Kenya, local investors and private operators as strategic partner.

8) **Project Implementation:** The Ministry of Transport through the KPA.

9) **Project Benetifs/Justification:** Reduction of delays and related costs for local and transit cargo; Enhanced participation of private sector in the transport industry; Improved port maintenance system; and More efficient delivery of KPA services.

10) **Involvement of NEPAD:** To promote the project as a public-private partnership and to assist in mobilizing financiers resources.

NACALA PORT (MOZAMBIQUE) REHABILITATION

1) **Project Name and Location:** Nacala Port (Mozambique): rehabilitation in support of concesioning

2) **Sponsors:** Mozambique and SADC.

3) **Background:** In 2000 an agreement was signed for the operations of the Mozambique Railway and the port of Nacala (terminal as well as maritime services) with the same consortium, the SDCN consortium, which now operates the Malawi Railway System.

4) **Project Objective:** The main objective is to improve the performances of a regional port. It will be necessarily to improve/replace the existing old facilities and equipment.

5) **Project Description:** To design and construct container terminal facilities; purchase of handling equipment and technical assistance to the management; general improvement of the port services. The project should be implemented in two stages: Stage One: Improvement of old facilities, development of container terminal including equipment maintenance facilities management and training.; Stage Two: Technical assistance and training including studies on marketing & tariffs; equipment of the port authority; management; and contingencies.

6) **Project Cost:** US$ 28 million; Period of execution:2003 – 2005

7) **Possible Financing Plan**: Combination of public and private financing under PPP.

8) **Project Justification and Benefits:** To enhance trade and efficiency of the transport chain linking Malawi to the Ocean and reducing very ratio of value of imports and exports over transport costs; To foster increase economic activity through the promotion of intra-regional and international trade. Nacala is the gateway of one SADC Development Corridor; To promote increased level of private sector investment and donor support.

9) **Proposed Involvement of NEPAD:** NEPAD could assist in identifying potential financiers of the project under a PPP initiative.

PORT OF DJIBOUTI AND DRY PORT AT ADDIS-ABABA

1) **Name and Location:** a) Port of Djibouti procurement of equipment for handling of containers. b) Dry port at Addis-Ababa: To be built and equipped.

2) **Sponsor:** IGAD, Government and Port Authority of Djibouti and Government of Ethiopia and the Ethiopian Shipping Lines.

3) **Background:** Following the closure of access to the Port of Assab (Eritrea) most of the import and export traffic of Ethiopia was re-directed to the port of Djibouti. Whilst the capacity of the port is sufficient, it requires rehabilitation in order to handle the Ethiopian traffic, which is loaded on trucks or a smaller amount on the CED (Ethiopia-Djibouti Railway)

   Handling equipment at the port of Djibouti is inappropriate to meet the growing demand for handling the movement of Ethiopian cargo, which includes grain industrial products, vehicles etc. The handling is not efficient and the problem of congestion is increasing.

4) **Project Objective:** The realisation of the project's two components (Container terminal in Djibouti and Dry-port in Addis Ababa) aim at developing multi-modal services to/from Addis Ababa by allowing transit under seals and the warehousing and consolidation of cargo at the dry port. This would allow the railway to improve its services and competitiveness in view of its privatisation (an advisor is being appointed to assist in the privatisation).

5) **Description:** The following activities will be necessary to attain the expected results: Installation of a container terminal and handling equipment at the Port of Djibouti; Construction and equipping of a new Dry Port at Addis Ababa capable of handling containers; Implementation of a comprehensive training programme.

6) **Project Cost:** The cost of the project is estimated at US$15million; Implementation duration:2003-2005

7) **Possible Sources of Finance:** The European Union (EU) financed the Railway Rehabilitation Study and could be requested to finance this project.

8) **Executing Agency:** Djibouti will execute the container terminal project and the Ethiopia the Dry Port project, under the auspices of IGAD.

9) **Benefits:** The project seeks to improve operations in the two terminals of the Djibouti-Ethiopia corridor and will help to: respond to the growing volume of cargo as well as providing efficient client services; and allow the railway to operate a faster container flow and to reduce turn around time for vessels in the port. This project will have a significant impact on the Ethiopian population who can expect faster and cheaper transportation of their goods.

10) **Measures Envisaged:** The next stage is to mobilise finance and, thereafter, to prepare bidding documents for the services concerned in each of the member States.

11) **Support by NEPAD:** NEPAD could assist these two countries to: a) Conduct an analysis and encourage the undertaking of policy and institutional reforms that would go along with both projects to ensure the best use of the facilities; and b) Mobilise the required resources for the project's implementation.

INCREASING THE CAPACITY AND CONSTRUCTION OF A CONTAINER TERMINAL AT PORT OF DAKAR

1) **Name and Location:** Increasing the capacity and construction of a container terminal at Port of Dakar.

2) **Sponsors:** The Government of Senegal and the Port Authority of Dakar with the support of UEMOA/ECOWAS.

3) **Present Situation:** The present situation is characterised by low port's competitiveness compared to other West African ports. There are also shortcomings in terms of management and over employment. The storage areas and facilities offered in general are inadequate. The port of Dakar has a regional role and is an important port terminal for the railway line to Bamako.

4) **Objectives:** The main objective is to improve the port and to increase its capacity to meet the needs of growing traffic and to enhance its competitiveness.

5) **Project Description:** Rehabilitation and extension of the Port of Dakar, including the following: Container terminal; Oil berth; Other facilities and port installations (terminal for phosphates. Provision of Port and handling equipment.

6) **Project Cost**: The project is estimated at US$68 million. Period of implementation: 2003-2006.

7) **Possible Donor/Financing Plan:** The financing plan is yet to be determined. It will be a combination of public and private funding. The public funds could be used for basic infrastructure and for social programmes.

8) **Executing Agency:** The project will be implemented by Senegal (Port Authority of Dakar) with UEMOA playing a coordination role with respect to transit facilitation aspects to Mali and development of multi-modal services in liaison with the railway.

9) **Benefits:** The implementation of this project combines institutional measures and investments that will lead to more efficient port operations and a reduction of transit time of containers (from an average of more than 20 days in 1999 compared to the target of 5 to 7 days). This would translate into a reduction of costs.

   In the medium term the project will result in less congestion and the related costs and diversion of traffic to other further ports such as Abidjan.

   The modernisation of the port of Dakar has implications on the competitiveness of the port-rail logistic chain from Dakar to Mali and will allow better utilisation of the capacity of the railway as well as an improvement of services.

10) **Support from NEPAD:** To assist in mobilising financial resources from the private and public sectors.

PORT OF MAYUMBA: PRE-FEASIBILITY STUDY

1) **Name and Location**: Port of Mayumba: pre-feasibility study for construction of a deep-water quay.

2) **Sponsor:** Gabon and the Port Authority of Mayumba, ECCAS.

3) **Background and Status:** In order to improve port services for the South of Gabon and the sub-region, the Government intends to undertake an economic and financial study for the development of the Mayumba Port site in partnership with the private sector. In this regard, a request for the financing of the pre-feasibility study has been presented to the ADB. The deep water port of Mayumba would serve as a main port for Gabon and for the Central African Countries.

4) **Objective:** To allow Gabon and neighbouring countries to appreciate the role that could be played by this port in the sub-region and to obtain data on the capacity and horizon of viability of the Mayumba port site based on technical, operational and financial analysis. The study will also outline the modalities for a partnership with private investors.

5) **Description of the Study:** The study will cover the following points: a) review of the characteristics of the site and surface and maritime access using maps and existing information collected through visits; and evaluation of environmental impacts; b) traffic projections: from Gabon and neighbouring countries and transhipment traffic; c) definition of options for development corresponding to different traffic thresholds; d) analysis of the viability of different options; e) required financing: public financed components (road links, etc.) private financed components (the port itself and equipment).

6) **Cost of Study:** The cost of the study is estimated at US$1million; Duration of implementation: 2003-2005

7) **Possible Sources of Finance:** Financing could be provided by ADB.

8) **Benefits:** The study will lead to decisions on the next steps on the basis of project costs and related actions for linking the port to its hinterland in Gabon and Congo of resources for the follow up of the preparation of the project. The study will pave the way for the eventual follow up of the participation of the private sector partners.

9) **Measures to be Taken:** Follow up the funding proposal submitted to ADB, sensitise the private sector and solicit their advice on the conduct of the study.

10) **Support by NEPAD:** Provide guidance on the most appropriate institutional and regulatory framework for enhancing the participation of the private sector. Support the mobilisation of funds.

ADVISORY SERVICES FOR MARITIME AFFAIRS

1) **Project Name and Location**: Advisory services for maritime affairs. It covers the SADC countries.

2) **Sponsor**: SADC.

3) **Project Objectives**: To bring maritime and port safety and security along SADC's seaboard.

4) **Project Description:** The purpose of this project is to assist with the implementation of international conventions related to maritime safety and pollution control, as well as to enhance the maritime authorities to apply the stipulation in these conventions, and others conventions already ratified by member states. The project has been initiated in co-operation with the South-African Maritime Safety Authority and the IMO Technical co-operation unit.

5) **Project Cost**: Cost estimate is US$1.8 million; Period of execution :2003 – 2005

6) **Current Status and Proposed Action:** The project has been presented anew to the European Union. The present project is included in the NEPAD program for its importance for region al collaboration.

REGIONAL STRATEGY FOR SHIP WASTE RECEPTION FACILITIES.

1) **Project Name and Location:** Regional strategy for ship waste reception facilities. This project will cover the West Coast (ECOWAS) Eastern and Southern Africa (SADC).

2) **Sponsors:** SADC and ECOWAS.

3) **Background:** As signatories to the memorandum of Understanding on Port State Control for the Indian Ocean region and he West and Central Africa region, all SADC coastal states are required to ratify and implement MARPOL 73/78. At a SADC maritime safety development workshop held in Windhoek in 1998, SADC member countries agreed to, among other things, harmonize their port regulations and establish port reception waste facilities that are integrated with local waste disposal systems.

4) **Project Objectives:** To develop options for the development and oversight of regional ship waste reception capacity in compliance with relevant MARPOL conventions; To develop options for private management of waste reception services; The project will also assist the ratification and implementation of MARPOL 73/78 by all the relevant SADC member states

5) **Project Description:** Feasibility study that will include definition of a regional policy platform and the definition of uniform requirement for waste reception facilities. Institutional options for PPP and regulatory oversight. Assistance to port administration and maritime authorities implementing MARPOL convention concerning ship waste.

6) **Project Cost:** The cost of the project is US$ 1.5 million; Period of execution: 2003-2004

7) **Justification:** World-wide experience has shown that regional measures with respect to ship waste reception facilities are more effective than purely national approaches. The proposed facilities will help protect beaches and marine environments which are the basis the tourism industry and are a source a livelihood for the coastal populations. Such capacity are required to allow ports to remain or become ports of call cruise ships.

8) **Current Status and Proposed Action:** Once funding has been secured SADC in collaboration with the Port Associations will undertake to prepare terms of reference.

9) **Role of NEPAD:** To help mobilize funding and foster regional collaboration for shared approach. To support exchanges of experience with ECOWAS and MOWCA.

MARITIME SAFETY AND FACILITATION OF MARITIME TRAFFIC

1) **Project Name:** Maritime safety and facilitation of maritime traffic. West Coast (ECOWAS) and East/Southern (SADC); Ports and maritime administration in the countries concerned.

2) **Sponsors:** SADC and ECOWAS with technical support and coordination from IMO.

3) **Project Objectives:** The project goal is to establish maritime and ports safety and security along SADEC and ECOWAS seaboards into line with international standards and build up adequate capacities. The project objective is support the establishment of maritime administration in the SADEC and ECOWAS areas through updating of legal and regulatory framework and though capacity building.

4) **Project Description:** Project activities include: a) Assist countries for establishment of maritime safety administration including the review/updating of maritime legislation and their enforcement; b) Promotion and dissemination of IMO instruments; c) Preparation of model legislation in English and French; and d) Capacity building through advisory missions, seminars and workshops for various subject of safety and facilitation of maintenance navigation

5) **Cost of the Project:** The cost estimate of the project is US$ 3.6 million

6) **Period of Execution:** 2003 – 2005

7) **Project Benefits:** The project results are: Maritime safety administration established strengthened and operational; Increased acceptances of IMO instruments and updated maritime legislation; Increased ratification and implementation of IMO Convention; and Improved ship inspections (PSC). The project will enhance safety and security and ensure that participating African ports meet related standards with as a result lower insurance rates, broader access to maritime transport services.

8) **Issues and Proposed Action:** The REC's concerned and IMO to finalize project document and seek additional financing needed.

9) **Proposed Role of NEPAD:** a) To assist in obtaining funding; b) To foster coordination and facilitate legislative action and enforcement at the country level.

SAFE NAVIGATION ON THE LAKE VICTORIA

1) **Name and Location:** Safe navigation on the Lake Victoria (East Africa).

2) **Sponsors:** EAC, countries concerned and IMO.

3) **Background:** The evaluation of maritime safety requirements on Lake Victoria was conducted by the IMO. Already, France and the IMO technical Cooperation Fund have provided a total of US$ 222,000 for the project.

4) **Background:** The overall objective is to improve port and sea safety of passengers, freight and vessels.

5) **Project Description:** The project concerns implementation of a programme comprising: Maritime regulations and legislation; Assistance to navigation; Search and rescue; Hydrography; and Coastal environment protection from pollution.

6) **Project Costs**: US$ 0.4 million for planning and programming phase; US$ 2 to 3 million for the implementation phase.

7) **Period of Implementation:** 2003-2005

8) **Financing:** Financing of this project will be requested from development partners that usually support such activities. France has already committed more than US$ 0.2 million.

9) **Benefits:** An improved safety of navigation on Lake Victoria will have, as an immediate effect, the saving of lives, freight and shipping equipment. It will also prevent pollution and preserve the environment. The best conditions for safety are a factor that will go a long way to encourage development of services, in particular multi-modal transport services, for interstate transit traffic to landlocked countries/regions. In time, safe navigation will stimulate trade and economic integration of the countries concerned.

10) **Action Plan for Project Implementation:** Following the findings of the consultants, it would be necessary to determine the cost of equipment and material to be procured to project completion. Next steps include mobilisation of finance.

11) **Role of NEPAD:** Through the EAC and the Inter-Ministerial Committee, NEPAD will support the coordination of joint actions undertaken by the countries concerned. NEPAD will also assist the mobilisation of funds for: completion of the programming phases; and implementation of the second phase, including the procurement of equipment.

SAFE NAVIGATION ON THE TANGANYIKA AND MALAWI/NIASSA/NYASA LAKES.

1) **Name and Location:** Safe navigation on the Tanganyika and Malawi/Niassa/Nyasa lakes. The project covers the riverine countries, namely: a) Lake Tanganyika (DRC, Tanzania, Burundi and Zambia); and Lake Malawi/Niassa/Nyasa (Malawi, Tanzania and Mozambique)

2) **Sponsors:** SADC, COMESA and countries concerned.

3) **Background:** Traffic on the Tanganyika and Malawi/Niassa/Nyasa lakes has been on the increase whereas navigation aids, regulations and inspection and rescue measures are inadequate. These aspects need the collaborative action by riverine countries concerned. The project will draw experience from an on-going project on Lake Victoria. Evaluation and programming conducted on Lake Victoria will serve as a model so as to arrive at coherent provisions for the both lakes and countries concerned as a whole.

4) **Objectives:** The overall objective is to guarantee ports and maritime security and safety of freight, passengers and vessels on the lakes. The specific objective of the project is to carry out a situation analysis, evaluate the needs and prepare an action programme covering regulatory and institutional aspects, human resources, financial sustainability, training, equipment etc.

5) **Project Description:** The study concerns: stocktaking of all aspects, laws and regulations, monitoring and intervention, and navigational aids; fleets and traffic, state of vessels; and ports and harbours.

6) **Implementation:** Countries concerned, supported by IMO will implement the project. SADC and COMESA will also assist.

7) **Costs:** a) Lake Tanganyika: US$ 0.6 million; b) Lake Malawi/Nyassa: US$ 0.6 million

8) **Period of Implementation** (study and project): 2003-2004

9) **Financing:** Funds will be mobilised from development partners, with countries concerned also making a contribution.

10) **Benefits:** An improved security of lake transport would directly help in saving lives (passengers), cargo and ships. The new structures and other instruments put in place will help to lay the bases for improvement of transport services on the lakes, and will also catalyse initiatives likely to step up trade not only between the riverine countries but also with countries of the great Lakes sub-region as a whole. The setting up of harmonised policies and safety programmes by the countries concerned will help to prevent pollution and protect the environment.

11) **Actions for Project Implementation:** First, funds need to be mobilised for project implementation. At completion of studies, the countries will have to establish a joint programme to implement the approved recommendations. Among other things, it would be necessary to support institutional measures in a joint effort, for the safety and security of navigation.

12) **Role of NEPAD:** Assist in mobilisation of funds and political action to implement regional cooperation initiatives related to improving safety and contribution of inland navigation in economic development of the countries concerned.

INSTITUTIONAL SUPPORT FOR THE IMPLEMENTATION OF THE YAMOUSSOUKRO DECISION

1) **Name and Location:** Institutional support for the implementation of the Yamoussoukro decision concerning the liberalisation of air transport in Africa.

2) **Sponsors:** ECOWAS, SADC, COMESA, ECCAS, IGAD and UMA.

3) **Background:** Within the framework of sectoral reforms African countries have undertaken to liberalise air transport in Africa. The process adopted within the Yamoussoukro decision of 1999 consisted of gradually liberalising regular and non-regular inter-Africa air transport services with the view to attaining full liberalisation in 2002.

   The decision concerned in particular the following provisions: Mutual grant of all traffic rights including those of the 5^{th} freedom; Free determination of fares; Non-Limitation of frequencies and capacities; and Non-discrimination in trade

   To date, the expected progress have been more realised in the East and Southern African countries more than those in West and Central Africa. This delay is mainly due to the existing un-adapted institutional and legal framework and the absence of a harmonised policy in the sub-regions concerned.

4) **Objective:** The project aims at reducing transport costs through the liberalisation of air transport.

5) **Project Description:** The project consists of four components: a) Establishment of a bureau for each sub-region to: b) improve the coordination of air transport policies in Member States and harmonisation of regulations; and c) adopt a regional legal framework for air transport.

a) Establishment of a regulatory body essential to the sector's development and for ensuring fair competition, including prevention of the development of a few or single dominant operator(s) that may adopt monopolistic characteristics.
b) Improvement of security through harmonised regulations in keeping with the ICAO standards and by the timely creation of an Inter-State civil aviation Security body.
c) Improvement of airport security especially at two leading airports of each sub-region by supporting their improvement security norms as set for category 1 for the FAA.

6) **Costs:** The project is estimated at US$ 100 million.

7) **Period of Implementation**: 2003-2005.

8) **Potential Financiers:** Financing will be mobilised from prospective development partners who normally support air transport activities, the private sector and countries concerned.

9) **Executing Agency:** The project will be implemented by the countries concerned in collaboration with the RECs, namely ECOWAS, SADC, COMESA, ECCAS, IGAD, EAC and UMA.

10) **Expected Results:** The results expected from this project that is aimed at liberalisation of air transport are the following: a) Increased revenue for countries concerned. This increase will rise from higher traffic and the corresponding revenue; b) Reduction of transport costs as a result of competition; c) Regional economic integration through better integration with the global markets and business environment; d) Better development of tourism and increased share of benefits from the tourism industry, including jobs created and revenue.

11) **Support of NEPAD:** NEPAD could provide assistance in two ways: a) Encourage the States concerned through their RECs to establish the necessary regulatory environment and institutional framework that will ensure obtaining of expected benefits from the implementation of the Yamoussoukro decision; and b) Assist in the mobilisation of financing for project implementation.

SUB-REGIONAL UPPER AIRSPACE CONTROL CENTRE (UACC)

1) Project Name and Location: Establishing Sub-regional Upper Airspace Control Centre (UACC). Participating countries include the Southern Africa Development Community and East Africa Community States.

2) **Sponsor(s):** SADC, EAC, countries concerned and private investors.

3) **Current Status**: Feasibility studies have been carried out for SADC and is ongoing for EAC. SADC has been given responsibility to coordinate further development of the project.

4) **Background:** In accordance with the global trend, Africa is implementing systems aiming at progressively converging to the satellite based CNS/ATM (Communications, Navigation, Surveillance and Air Traffic Management) concept. The system is promoted and coordinated worldwide by the International Civil Aviation Organization (ICAO).

   One of the major components being pursued is the improvement of the air traffic control systems through the use of consolidated or unified upper air space centers (UACCs). Revenues from these UACCs will also support the development of the national lower airspace systems. The Eastern and Southern Africa sub-regions have made significant progress in preparing implementation of the UACC. From the progress achieved, and the consultations made within the sub-region, the SADC and EAC countries are ready to proceed with implementation in the near term.

5) **Project Objectives:** To provide air traffic management (ATM) services in the SADC and EAC areas, by maximizing benefits expected from new CNS/ATM capabilities and regional co-operation, like safety, infrastructure, transition, capacity, compatibility between systems and affordability.

6) **Project Description:** To secure agreement by the countries concerned to consolidate their upper airspaces into a unified single space; To support the SADC, EAC and countries concerned in determining and establishing the suitable institutional and operational framework for the UACC, including financial structuring; To procure and build the partnerships needed for implementing the UACC; To operationalise the UACC.

7) **Project Costs:** US$ 70 Million for the SADC and EAC areas. Duration of execution: 5 years from late 2002.

8) **Possible Financiers/Indicative Financing Plan:** The project is expected to be implemented under a PPP arrangement, with financing mobilized from the private investors and the countries concerned.

9) **Project Implementation:** The countries concerned will enter into an agreement to establish the UACC and its operational and institutional framework. SADC and EAC States, through their Secrtetariats (led by SATCC as agreed) should prepare detailed proposal.

10) **Project Justification/Benefits:** The SADC and EAC States can achieve together a tremendous advance in infrastructure modernization to build on the already made investments by benefiting from the most advanced technology. This will to enhance safety and to guarantee cost savings. The improvement Air Traffic Control services will enable the SADC and EAC area to be better integrated in the global aviation system.

11) **Issues and Proposed Action:** Securing agreement by countries concerned to unify their airspaces: SADC and EAC to facilitate conclusion of the relevant agreement/MOU; Mobilisation of finance for completion of project structuring: SADC/SATCC to prepare proposals and solicit funds from prospective financiers; Facilitating establishment of the UACC: SADC/SATCC and EAC to procure assistance and partners.

12) **Involvement of NEPAD:** NEPAD will assist in: mobilizing political action from concerned countries; sourcing financing from both public and private sources; and Coordinating sub-regions/RECs and facilitating exchange of information.

GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)

1) **Project Name and Location**: Implementation of a Global Navigation Satellite System (GNSS). **Location:** The Africa and Indian Ocean (AFI) region: All the 47 African countries in 4 Sub-Saharan Africa (SSA) regions are expected to be involved in the project.

2) **Sponsor(s):** All RECs, coordinated by ASECNA

3) **Background Status:** One of the measures being taken to improve transport reliability and safety is the replacement of the terrestrial air navigation systems with the global navigation satellite system (GNSS). Supporting this transformation is a specific co-operation objectives in the transport policy strategy of the EU-ACP Partnership Agreement. Various studies have been conducted on the feasibility of extending the GNSS services to Africa. Agreement has been made to proceed with implementation, starting by establishing test beds for validating the system with the specific Africa situation.

4) **Project objectives:** The overall objective of the project is to implement the GNSS system in Africa. The specific objectives are to: Implement a test bed to validate the European GNSS procedures; Install the necessary ground infrastructure necessary to cover the AFI region.

5) **Project Description:** GNSS is considered as the future navigation system that would meet the needs of the civil aviation community well into the 21st century. The project concerns implementation of the system in the AFI region in two phases: a) Implementation of the test bed; and b) Installation of the ground equipment. Implementation of the GNSS system will provide multimode capabilities and is expected to benefit all other modes of transport, by the opportunity to use satellite systems for tracking and control of movement of traffic.

6) **Project Costs:** The cost of the project is estimated at US$ 5 million for Phase 1 (test bed) and US$ 11 million for Phase 2 (installation). The period of execution is 2003 - 2007.

7) **Possible Financiers/Indicative Financing Plan:** The funding is expected from the EU, within the Regional Indicative Programs, and intra-ACP funds. The participating countries will also make some contributions.

8) **Project Implementation**: Due to specific nature of the project, the Regional Authorizing Officers of the four sub-regions will designate a sole Delegated Regional Authorizing Officer (DRAO) for the purpose of sourcing of funds from the EU. A Steering Committee (SC) will be established to guide and supervise the DRAO and meet at least twice a year. The SC will consist of a representative of designated RECs in the sub-regions, a representative of ICAO, a representative of IATA, the chairperson of APIRG, the chairperson of the AFI GNSS study group (acting as an observer), a representative ANSP from each of the 4 sub-regions, a representative of EC (acting as an observer), and a representative of ESA (acting as a technical adviser).

9) **Project Benefits/Justification:** The satellite-based navigation system will allow optimization of airspace use and increased traffic capacity on critical air routes. Optimization of flight profiles and more direct routes will produce fuel savings thus enhancing the protection of the environment, and reduce flight times. Precision approach capabilities could be offered at all international airports. Furthermore, precision instrument guidance will allow better access to remote areas contributing to their development. The availability of satellite-based approach capabilities will contribute to the reduction of accidents or near misses.

10) **Issues and Proposed Action:** Main issues to be dealt with include: a) Identification of potential users/beneficiaries and the set-up of appropriate institutional structures to facilitate their coming together and to ensure long-term sustainability; b) Identification of private sector partners with direct interest in positioning and navigation information that could be stakeholders in the programme; c) Identification of appropriate intermediary outreach organizations like national mapping agency, fishing and transportation agencies or services; d) Identification of international partners/relief agencies/development finance agencies that could provide financial support for the AFI GNSS operational system implementation; and e) Designation of DRAO and mobilisation of needed finance. These issues should be dealt with the sub-regional RECs, assisted by ICAO.

11) **Involvement of NEPAD**: NEPAD will assist in mobilizing political support and finance for project implementation.

COOPERATIVE DEVELOPMENT OF OPERATIONAL SAFETY AND CONTINUING AIRWORTHINESS PROGRAMME

1) **Project Name and Location:** Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP). Location:(a) Southern, Western, and Eastern Africa; and (b) Central, North-Eastern and Northern Africa.

2) **Sponsor(s):** a) ICAO, SADC, ECOWAS, EAC, COMESA, ASECNA; and b) ICAO, ECCAS, IGAD, COMESA, UMA.

3) **Background and Current Status:** The ICAO has recently completed carrying out safety oversight audits for all African countries. The audit has identified common deficiencies that can be resolved jointly through by implementing the COSCAP project. These include lack of effective laws, policies and procedures; lack of training policies and programs; and the lack of programs for certification, inspection and surveillance. SADC held a workshop in Windhoek, Namibia 22-23 April 2002 on the subject. The participants acknowledged the potential benefits of the proposed project. The project was subsequently submitted to the SATCC Civil Aviation Committee (CAC) meeting (24-26 April) which endorsed it for onward presentation to the SATCC Committee of Ministers in June 2002 for adoption and implementation. Other sub-regions are also planning to pursue implementation of similar projects.

4) **Project objectives:** The ultimate objective of a COSCAP projects is to enhance safety and efficiency of air transport. The immediate objectives are to establish a self-sustaining sub-regional unit/entity capable of providing technical services in safety oversight to the member States. These projects are of limited duration during which the foundation is laid to build the future self sustaining entity whose characteristics would reflect the specific situation in a particular sub-region/REC.

5) **Project Description:** To identify deficiencies in States' primary aviation legislation and regulations relating to the subjects of personnel licensing and flight operation and airworthiness certification/surveillance; To review and harmonise legislation and regulation; and To establish sub-regional self-sustaining sub-regional safety oversight units/entities.

6) **Project Costs**: US$ 50 million: US$ 25 million each for group (a) and group (b) sub-regions. **Duration of project execution 2002-2005 (42 months)**

7) **Possible Financiers/Indicative Financing Plan:** Each State will contribute funds for the implementation of the project. Various options are possible for a cost-sharing formula between States, which will be responsible for sustaining the unit/entity in the long term. Possible financiers (who have indicated their support to the SADC project) are EC, Netherlands CAA and Airbus. It is also expected that certain sponsors may provide contribution in kind in the form of instructors, training manuals etc. and in cash.

8) **Project Implementation:** The States concerned, through their respective RECs and with technical assistance from ICAO, will prepare project proposals and submit them to prospective financiers; The Sates/RECs will determine the operational and institutional framework of the safety oversight unit to be established; ICAO will assist in the recruitment of technical experts needed to implement the projects as well as in providing training to staff of the sub-regional safety oversight units. With the permission of the States the experience of ICAO Universal Safety Oversight Audit Programme will be available to the project.

9) **Project Benefits/Justification:** Experiences gained at the current COSCAP projects in the Asia Pacific and South America regions have proven its cost effectiveness as indicated by an average benefit cost ratio (4,6 in COSCAP South Asia project); COSCAP Projects have provided the States with the opportunity to implement considerable training programs at reasonable costs and in a short period; Many States and sub-regions have been struggling to achieve harmonization of flight safety related laws, regulations, and procedures for a long time without success. Through COSCAP arrangements, such harmonization would be achieved in a relatively short period; The COSCAP projects provide manpower support to the States to implement the action plans submitted to ICAO for addressing the deficiencies pointed out in the audits; Once the project has progressed, the Steering Committee (SC) will have sufficient information to define which self-sustaining cost-effective entity would be the most appropriate to ensure the sustainable and strengthened capacity to provide safety oversight.

10) **Issues and Proposed Action**: Funding: Currently, the States/RECs have very limited resources. Most traditional Donors consider aviation not to be in their priority area of interest. However it is vitally important for mobilize funds to accommodate requirements in this critical area of air safety. A cooperative approach involving States/RECs, Donors and other partners should be used to mobilize needed funds.

11) **Proposed Involvement of NEPAD:** NEPAD will assist in mobilizing public and private funding for the project.

STUDY ON THE UPPER SPACE CONTROL CENTERS

1) **Project Name and Location:** Study on the Upper Space Control Centers for West, Central and Eastern Africa

2) **Sponsor(s):** ASECNA, ECOWAS, ECCAS, COMESA, IGAD and countries concerned.

3) **Background:** To secure safer skies for Africa in this era of technological advancement and emerging volume of air traffic movements, ICAO is promoting the global implementation, across the continent, of CNS/ATM (Communication, Navigation, Surveillance ad Air Traffic Management) systems to replace the existing obsolete terrestrial-based air navigation facilities. The successful implementation of such systems would be assisted greatly by regional cooperation through the creation of unified Upper Airspace Control Centers at sub-regional level, with a consideration of the possibility of consolidating them further to fewer or one for Africa.

   Some initiatives have been taken in the continent, such as the SADC Upper Air space Control Center Project and the ASECNA CNS/ATM project, among others. While the SADC project is ready for full implementation, and can be fast-tracked with the EAC project, the majority of the other initiatives in other parts of Sub-Saharan Africa are still at a stage of conceptualization.

   Implementation of the UACC project in the remaining sub-regions needs to be accelerated so that the whole continent can benefit from the resulting improvements from the overall CNS/ATM systems of which the UACC is a component. Consequently, a feasibility study will be carried out for the rest of the sub-regions, as part of the short-term plan.

4) **Study Objectives:** The objectives of the study are to undertake a feasibility study and make recommendation of implementation modalities of the UACC projects in the West, Central, North-East and North sub-regions of Africa. The study will include consideration of an option of further consolidation of the sub-regional UACCs.

5) **Study Description:** Using the experience of the Southern and Eastern Africa UACC project, the study will mainly focus on the following: Assessment and evaluation of the existing air traffic management systems, and/or the existing initiatives for implementation of CNS/ATM; Assessment of the situation and development trends of the aviation industry at sub-regional level, continental and global level; Assessment of the technical, operational, management, legal and other factors that may affect implementation of the UACC projects; Assessment of the feasibility of UACC projects in the sub-regions concerned, within the aviation industry environment; Assessment of the possibility of further consolidating the sub-regional airspaces for implementing fewer or one UACC.; Proposals of an investment program taking into account the existing infrastructure; Identification and structuring of a possible Public – Private Partnerships for the financing and implementation UACC including operation of the new control systems. Proposals on an UACC Operational management structure; Proposals on an airspace re-structuring plan; Proposals on a revenue collection and sharing system including a cross-subsidization scheme between UACC revenues and Lower Space control requirements at national level.

6) **Study Cost:** Estimated cost: USD 3 million; Study and project preparation duration: 2002 – 2004

7) **Implementation Responsibility:** RECs and countries concerned, with the assistance of ICAO.

8) **Benefits/Justification:** The study will help to prepare UACC projects which have a potential for: Improvement of Air Traffic Control Services in the sub-regional economic groupings, through improved air ground communication, optimizes air traffic handling and more flexible and efficient use of airspace; Enhanced air transport safety; Environment protection through reduction of gas emissions by better controlled and, thus, more efficient air traffic.

9) **Issues and Proposed Action:** Funding: RECs and countries concerned, with assistance of ICAO, should prepare detailed TOR and financing proposals for the studies. Proposals should be submitted to potential financiers to solicit funds for the studies.

   A coordination mechanism should be established to optimize the use of resources for the sub-regions: The NEPAD Secretariat, assisted by ICAO, to help in coordinating the sub-regional programmes.

10) **Proposed Involvement of NEPAD:** NEPAD will facilitate coordination of the sub-regions/RECs for the implementation of the UACC projects. NEPAD will also assist RECs and countries concerned in mobilizing finance for the studies.

TRANSPORT INFRASTRUCTURE RECOVERY IN ANGOLA AND DRC

1) **Project:** Transport Infrastructure Recovery in Angola and DRC

2) **Background and Project Description:** The prolonged war situation in Angola and Democratic Republic of Congo (DRC) has destroyed the economic fabric and especially infrastructure including that of transport. Post-war economic recovery will depend on the rehabilitation of transport infrastructure, including the reconstruction for roads, rails, ports and airports, as well as services. Prior to the definition of an action plan, sectoral studies (by each mode of transport) will be necessary to determine short-term to medium and long term priority programme, focusing on regional integration. The to be undertaken in phases are:

Brief Description	Cost in US$ million	Period of Implementation	Sponsor
1. Roads reconstruction/rehabilitation evaluation study	10	2003-2005	DRC/ANGOLA
2. Benguela railway evaluation study	5	2003-2005	ANGOLA
3. Evaluation of transport infrastructure requirements	2	2003-2005	DRC/ANGOLA
4. Congo River evaluation and rehabilitation study. The study will concern infrastructure requirements (ports) navigation aids and institutional aspects	9	2003-2005	DRC
5. Evaluation and rehabilitation of port infrastructure and equipments and organisation of the Benguela, Namibia in Angola	6	2003-2005	ANGOLA
6. Evaluation study of the Lobito port rehabilitation study	5	2003-2005	ANGOLA
Total	37		

TRANSPORT REFORM AND INTEGRATION SUPPORT FACILITY (TRISFA).

1) **Project Name and Location:** Transport Reform and Integration Support Facility (TRISFA). Regional project

2) **Sponsors:** AfDB and NEPAD Partners.

3) **Background:** Most of NEPAD work in transport will be to accelerate the response to familiar problems. NEPAD objectives in transport are not new, they deal with long-standing challenges and they support approaches that have already been tested in Africa. What will be new under NEPAD are the political support and the sense of urgency and collective responsibility for results. However in order to obtain rapid progress on the ground, the delays and the problems that have plagued the implementation of regional initiatives will have to be overcome.

NEPAD transport program will place numerous demands on REC's as well as technical agencies at the regional and country level. As a rule specific the responsibility for investment projects will be at the country level resting with sector agencies and private contractors, operators and financial partners. The REC's and technical agencies will have an important role in spearheading and coordinating programs, setting benchmarks and monitoring progress, resolving difference and planning joint actions.

The REC's will prioritize NEPAD programs in their planning. Some of the demands arising from the NEPAD programs will be met through their existing capacity and support mechanisms. However, these will be not be sufficient and will need to be supplemented in order to enable the REC's and implementing agencies to take initiatives and to act timely to get programs underway, to address issues and respond to demands and opportunities.

In order to meet this need, the AfDB preparation team recommended that NEPAD pursue the establishment of a facility to provide technical support and facilitation services to REC's and the technical implementing agencies

4) **Project Objective:** To facilitate and expedite the preparation, implementation and monitoring of NEPAD transport program by providing timely technical and institutional support to the REC's and the technical agencies concerned. To facilitate the coordination and the exchanges between REC's and between professional associations and technical agencies across sub-regions.

5) **Project Description: T**he proposed ***Transport Reform and Integration Support Facility for Africa (TRISFA***) would respond to demands directly related to NEPAD transport programs emanating from the relevant REC's and technical agencies responsible for implementation of NEPAD transport programs. TRISFA would fund limited, timely interventions to speed up project planning and implementation, to develop consensus, broker partnerships, and foster exchanges between REC's and technical agencies.

TRISFA would typically support the following:

- ***Regional coordination and joint action***: exchanges among REC's and within REC's, consensus building, brokering of agreements
- ***Technical advice***: implementation of conventions/protocols, assessments, program planning and implementation, institutional capacity building.
- ***Knowledge sharing and networking***: benchmarking, policy agenda, good practices, exchanges, study tours.

The specific activities supported by TRISFA will be determined by the demands emanating from REC's and technical agencies. The review of the short-term action plans for the various sub-sectors has identified a number of interventions that would need TRISFA's support, for example:

TRISFA would be modeled along the lines of the Private Participation in Infrastructure Advisory Facility (PPIAF) of the World Bank Group or the recently established EC funded capacity building project for Southern Africa (targeted specifically at the implementation of protocols on transport and trade facilitation). Both of which are structured to provide just-in-time demand responsive support to agencies spearheading reforms and changes.

TRISFA would be set up early with an initial budget of US$20 million for the initial four years: FY03-06. It would be demand driven. Its management and its operational procedures should be simple and transparent. It could be set up as AfDB trust fund with a large degree of operational autonomy. Its financing would be shared between development partners and African governments.

6) **Project Cost:** The expenses for the initial four years (2003-2006) are shown below. The agency costs would amount to US $2,8 million i.e. about 14 % which is consistent with the 15-20% benchmark for such programs. TRISFA would be demand driven and would not as such be involved in sector policies but would support agencies that are responsible for policy development and implementation. The repartition between various sub-sectors shown in the cost table reflects the anticipated demand. It is indicative, as the actual share of the respective sub-sectors will be determined by the demand.

Agency costs	US$ (million)
Establishment (recruitment, OT and communication equipment, furniture, etc.)	0.40
Management, administration, communication (4 years)	1.60
Review, audit, evaluation, advice, oversight board (4 years)	0.60
Sub-total	2.60
B) Operation	
1. Trade corridors without borders and barriers (Transit facilitation)	3.5
2. Better and safe roads	2.7
3. Competitive and seamless railways systems	2.0
4. Efficient ports	2.0
5. Safe seas and ports	1.5
6. Inland waterways	1.5
7. Liberalization of air transport and upgrading of air safety & security	4.0
Sub-total	**17.2**
	19.2

7) **Financing:** The project would be funded through a Trust Fund pooling the contribution of several NEPAD partners; possibly through the re-allocation of existing TF. The scope and coverage of TRISFA would take into account existing similar facilities so as to ensure that TRISFA supplement them either by themes or by geographical and institutional coverage.

8) **Project Implementation:** TRISFA management and institutional structure would be modeled along PPIAF and other successful support facilities. It would be lodged as a Trust Fund within the AfDB institutional framework. It would operate with a large degree of autonomy under the oversight of an executive board made up of representatives key NEPAD partners. TRISFA would establish offices in one or two locations. As the proposal gains acceptance, more work will be undertaken on institutional options, operational principles, deployment etc.

The management and administrative functions would be primarily focused on the review and follow-up of requests by REC's and technical agencies on: operational guidelines for project applications, reviews and implementation; portfolio monitoring systems; and internal administration and financial management procedures.

The REC's and the technical agencies (including country agencies) designated in the NEPAD implementation framework will be eligible to apply for TRISFA grants. Project implementation and administration arrangements would be defined with the PPIAF model in mind. A World Bank Task Manager following WB procurement procedures administers PPIAF projects. Substantive management is ensured by the country agencies concerned in conjunction with the Task Manager. This arrangement ensures expeditious implementation and has provided for adequate involvement of country agencies.

9) **Projects Benefits and Justification**: The benefits of just in time and on-demand support for regional undertakings and change process arises from the need to develop and maintain the commitment of a large number of actors. The interventions intended under the proposed facility will cover: technical advice on emerging issues, process facilitation, consensus building and resolution of difference etc. Such support will also apply to exchanges and knowledge sharing complementing existing initiatives. The benefits of TRISFA will be to empower the REC's and to alleviate the risk that the high expectations raised by NEPAD in the area of regional transport integration will flounder on the limitations of the REC's. TRISFA will provide NEPAD with the vehicle that it needs to obtain rapid progress on the ground and overcome the problems that have plagued the implementation of regional initiatives.

10) **Issues and further Action:** As the principle of a facility such as TRISFA gains acceptance, its fuller preparation will have to be undertaken. This will include: consultations with NEPAD partners on policy principles and financing options; review of relevant models in particular PPIAF and outline of institutional options and arrangements for governance, management and financing; assessment of demand and pilot actions; project approval and roll-out plan; launch and tart-up.

APPENDIX 5

PROJECT BRIEFS AND PROFILES
INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT's) SECTOR

COMESA COMTEL PROJECT

1. **The Project:** The COMTEL project covers the following countries; Angola, Burundi, Comoros, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Malawi, Madagascar, Mauritius, Namibia, Rwanda, Seychelles, Swaziland, Tanzania, Uganda, D R Congo, Zambia and Zimbabwe. The project is open to other countries who are free and encouraged to join the project.

2. **Sponsor(s):** COMESA and the National Telecommunications Operators (NTOs) from COMESA members States.

3. **Current Status:** The COMTEL Steering Committee has concluded a number of important miles stones through the work of various sub-committees namely, the Special Committee, Evaluation Committee (comprising eight countries; namely Egypt, Zimbabwe, Burundi, Zambia, Sudan, Kenya, Tanzania, and Malawi) and the Legal Committee comprising Legal Counsels from all the NTOs. The following task have been successfully concluded: a) Traffic verification and proposed network investment cost analysis, b) Completion of the COMTEL Business Plan, c) Preparation of Shareholders Agreement, Articles of Association and Memorandum of Association for both the COMTEL Investment Company and COMTEL Communications Company, d) Registration of the companies, e) Negotiation with interested investors, f) Co-operation and inter-connection agreements, g) Presenting the project in continental and regional forums, i) Formation of Interim Board of Directors, j) Facilitation of signing the shareholders agreement, k) Facilitation of payment of pre-operation budget, l) Analysis of regulatory issues

4. **Background:** Lack of an optimised network and flexible interconnectivity, as well as high tariffs, are the most important inhibiting factors that contribute to low inter-state traffic. These factors negatively affect trade, social and economic development within the COMESA region.

   In many countries of the COMESA region today, the current levels of capital investment are inadequate to match with the improvement in the required telecommunications infrastructure. Many existing telecommunications operators are unable to raise the huge amount of capital required to upgrade their networks within a reasonable time frame. The existing telecommunication infrastructure is, in most places, inherent with many short comings. As the traditional methods of funding telecommunications infrastructure are no longer applicable, other sources of financing are being encouraged. One of which is public private partnerships through joint venture operations involving shared capital with the private sector. With the on-going process of adopting investor friendly telecommunications policies, private sector investment is being seen as a means to improve the performance of the sector in availability, quality and price of services provided to customers

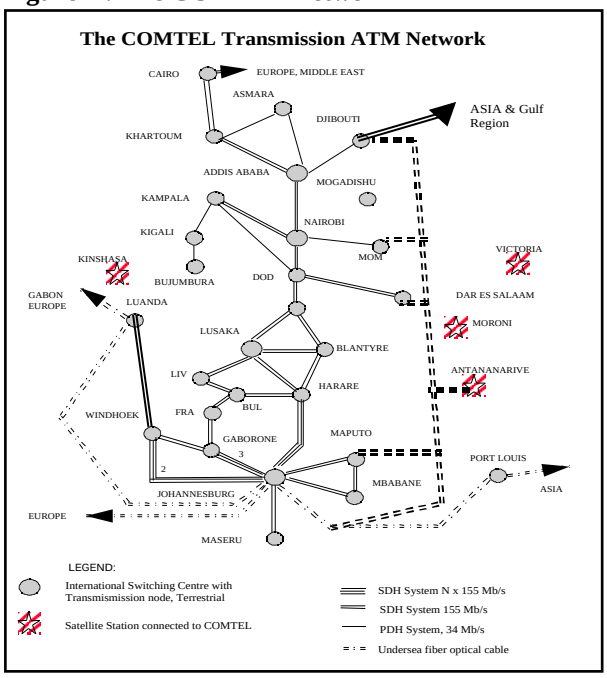
   The Common Market for Eastern and Southern Africa (COMESA) is promoting the establishment of a regional telecommunications network. This regional telecommunications network will be built and managed by COMTEL Communications Limited, a Private Limited Company. This is with the view of facilitating increased trade, social and economic development within the region. The move for COMTEL Communications Company Limited to be a reality is the outcome of a study on telecommunications network inter-connectivity and tariff harmonisation undertaken by Telia Swedtel on behalf of COMESA with financing from the African Development Bank. The Network will be based on ATM technology.

5. **Project Objectives**: The objectives of the project are: to improve the level of service offered to potential COMESA customers; to lower tariffs resulting and increase telecommunication traffic; to reduce outflow of hard currency from the region; to increase co-operation between COMESA Member States; to reduce investment cost and increase negotiation power of the region; to Promote research development and technology transfer; and promote the African human resources development

6. **Project Description:** COMTEL backbone network has been configured to include a mix of optic fibre, microwave and satellite connectivity. The network will facilitate transmission of voice, data of various bandwidth, and TV programs. Although the network has been configured with the application of the Asynchronous Transfer Mode (ATM) in the feasibility studies, the company reserves the right to select the appropriate technology on a country by country basis.

The network will be built on existing infrastructure where available. Nevertheless, new transmission routes employing a mix of fibre-optic cable, digital microwave and satellite systems have to be constructed to reach some countries. The viability study carried out based on the required investment costs and traffic projections show good returns on investment.

Figure 2 : The COMTEL network



The choice of the technology used by any network will be influenced by variables such as cost, service needs, geographical environment, and compatibility with existing or already installed technologies. The basic network architecture for the COMTEL project shall utilise the Asynchronous Transfer Mode (ATM) Technology. ATM technology supports the transmission of multiple traffic types (data, voice and video) and also allows the free intermixing of delay tolerant traffic (such as data) with time sensitive traffic (voice and video). The flexibility of ATM enables the network to carry a large number of services with widely varying traffic characteristics. The notable benefits of ATM technology to users are: timely access to network resources, support for messages of variable length; higher transmission speeds; self routing capabilities for multiple traffic types; support for new data communications and telecommunications applications; guaranteed level and quality of service; and protection mechanisms against network congestion.

The COMTEL will develop a Regional Internet Backbone (RIB) connecting all the project countries. The RIB will have three exchange node distributed within the region to connect all the Internet Service Providers within the region to the world. This is highly important for dissemination of information for socio-economic development. The COMTEL network will be constructed and operated in a manner to make room for regional private data networks. The COMTEL network will provide capacity for video conferencing facilities. RTVB will be constructed to connect all media and TV centres.

7. **Project Costs:** The total project cost is estimated at USD 215 million.

ESTIMATED PROJECT COSTS	
Items	**COST (US$)**
Optical Fibre & Civil Works	174,426,000
ATM Router	1,224,000
ADM 622+ Optical Equip (Terminal)	1,322,200
REG 622+ Optical Equip (Regenerator)	14,315,600
T55+ Microwave Equip (Terminal)	382,000
T155+ Microwave Repeater	3,841,000
DC Power Supply Plant	482,747
Installation Material	266,905
Sub-Total	**196,260,452**
NMC	343,230
Network Clock	232,236
Engineering Services	207,000
Documentation	48,000
Test Equipment	454,680
PC	207,900
Training	504,000
Contingency	5,000,000
Satellite overlay	4,000,000
Billing System	7,600,000
Grand Total	**214,857,498**

8. **Possible Financiers/ Indicative Financing Plan:**

Strategic Equity Partner (SEP)
30% US$43.2 million
National Telecommunications Operators (NTOs) 25% US$36 million
Private Sector Investors (PSI) including debt 45% US$64.8 million

9. **Project Implementation:** COMTEL Communications, a Private Limited Company, was registered as an offshore company in Mauritius on 26th May 2000. Subsidiaries will be established in other project countries depending on operational requirements of the network. COMTEL Investment Company Limited (CICL), an offshore Private Company registered in

Mauritius on 26th May 2000, will be used by NTOs as a vehicle to invest in COMTEL Communications. The Interim Board of Directors of CICL was formed during the 5th meeting of the COMTEL Steering Committee. The Interim Board comprises D.R. of Congo, Egypt, Kenya, Malawi, Mauritius, Sudan and Zambia. Egypt and Kenya has been selected as Chairman and Vice Chairman, respectively.

The COMTEL Communications Company Limited shares have been to ensure that the private investor will have majority equity shareholding. Shareholders will be National Telecommunications Operators (NTO) from the project countries, a Strategic Equity Partner (SEP) and other corporate or institutional financiers. The actual share holding structure is yet to be agreed upon. Share allocations consist of SEP 30%, Private Sector Investors 45% and NTOs 25%. Ten (10) countries have signed the Shareholders Agreement of the COMTEL Investment Company. These countries have also paid the pre-operational budget. The other remaining countries are still discussing and processing the approval for joining the company. The NTOs agreed to pay their share capital in four installments. The NTOs endorsed the co-operation and inter-connection agreements. The project will be implemented in the following phases, namely

Phase1: Central and Eastern Sub-Regional Connectivity: This phase will involve the construction of the network in the following countries: Uganda, Kenya, Tanzania, Rwanda, Burundi, Malawi, Zambia and Zimbabwe;

Phase 2: Northern Sub regional Connectivity: This phase involves the connectivity of Ethiopia, Egypt, Sudan, Eritrea, Djibouti; and

Phase 3: Satellite Connectivity and Leased Capacity in Southern region. This phase involves the Indian Ocean Countries satellite connectivity and the leasing of capacity from Windhoek, Mbabane, Kinshasa and Harare. This stage will also involve the construction of the Angola link.

10. **Project Benefits:** Save transit charges and ensure more income to and in the region; stimulate an integrated development of back bone infrastructure and links in the region; Stimulation of traffic to the region (social and economic benefits); facilitate the opening up of land locked countries as well as ensure more traffic from land-lock countries; enable competitive tariffs within the region and ensure affordable telecommunications services; ensure wide connectivity and interconnectivity within the region; enhance rural telecommunications development and value added services including internet and ICT applications; lower business cost within the region and attract more investment to the region

11. **Project Justification:** The project is financially viable with internal rate of return (IRR) equal to 26.08% and economic rate of return of 31.5%. The project is technically feasible and institutionally sound. The project implementation will enhance the telecommunication industry, national skills and transfer of technology.

12. **Issues and Proposed Action:** There is a need to increase the profile of the project and encourage all the NTOs to participate in the project. Harmonisation of telecommunications regulations and policies within the region will facilitate the implementation of COMTEL. There is a need to facilitate the funding of COMTEL through both the public and private sectors.

13. **Involvement of NEPAD**: NEPAD will promote the project and facilitate the financing of the project.

ECOWAS REGIONAL INTERCONNECTION PROJECT

1. **The Project**: As part of efforts towards the physical integration of the sub-region, ECOWAS has embarked on programmes to interconnect existing networks in the region. The project will entail the digitization of the following links: Cotonu-Lagos, Cotonu-Lome, Cotonu-Ouagadougou, Cotonu-Niamey, Niamey-Ouagadougou, Niamey –Gao Bamako, Niamey- Kaduna, Birni N'koni-Sokoto, Lome-Ouagadougou, Lome-Accra, Abidjan-Accra, Accra -Ouagadougou, Abidjan - Ouagadougou, Abidjan - Monrovia, Yamoussoukro - Monrovia, Abidjan - Dakar CSM A, Freetown - Monrovia, Conakry - Freetown, Conakry -Bissau, Banjul -Dakar, Bissau - Banjul, Dakar -Nouakchott, Dakar - PRAIA, Conakry - Dakar, Dakar -Bissau, Bamako - Dakar, Bamako - Conakry, Bamako - Abidjan, Bamako -Ouagadougou 2, Bamako -Ouagadoudou 2

2. **Sponsors:** ECOWAS, ITU

3. **Project Objectives:** The objective of the project is to provide the Community with a regional telecommunications network that is modern, reliable, and capable of offering a wider variety of services, including multimedia and wide band services.

4. **Current Status:** The INTELCOM I program which entailed the interconnection of the capital cities of West Africa by microwave links had been successfully completed. The current project, INTELCOM II programme, is designed to complete the remaining portions of INTELCOM I and to facilitate telecommunications development in the sub-region through improved satellite or fibre-optics links.

5. **Project Costs: US$50-80 million**

6. **Project benefits:** The project will on the whole save transit charges and ensure more income to and in the region; stimulate an integrated development of back bone infrastructure and links in the region; stimulate traffic to the region; facilitate the opening up of land locked countries as well as ensure more traffic from land-lock countries; enable competitive tariffs within the region and ensure affordable telecommunications services; ensure wide connectivity and interconnectivity within the region; enhance rural telecommunications development; lower business cost and attract more investment to the region

7. **Project Justification:** The importance of efficient infrastructure linking Member Sates cannot be over-emphasised in the light of the goal of integrating the economies of West Africa. Adequate communication facilities within the region is very important for the promotion of intra-regional, inter-regional and international thereby enhancing the economic development of the region in particular and the continent in general. In addition to this, availability of quality communication systems is a crucial element in improving economic competitiveness and strengthening the integration of the region.

8. **Involvement of NEPAD:** NEPAD will promote the project to enhance its ability to attract requisite financing by the public and private sectors within and outside the continent.

SAT-3/WASC/SAFE – UTILISATION TO IMPROVE INTERCONNECTIVITY

1. **The Project**: The SAT-3/WASC/SAFE project consists of a state-of-the-art, high capacity, optic fibre, submarine cable system linking directly the continents of Asia, Africa and Europe. The 28,000 km link has 17 landings in 16 countries with 11 of those being in South and Western Africa. (Route details contained in Appendix A) The project concept was developed by Telkom SA in 1996 and officially initiated with the signing of a Memorandum of Understanding between Telkom SA and Telekom Malaysia on 18 July 1996.

   The US$639 Million project achieved full investment subscription in 1999 with the signing of the Construction and Maintenance Agreement by 41 global telecom operators from all over the world, including the Americas, Africa, Europe, Asia and Australasia. Contracts for the supply and installation of the contract were awarded immediately after the signing of the C&MA and the project is was successfully installed and declared ready for commercial service on 18 April 2002

2. **Project Objectives**: The main objective of the project is to address the need for international high bandwidth fibre optic connectivity for African countries to become part of the global communications highway. Telecommunication and reliable state-of-the-art, global connectivity is key to business development and foreign investment on the African continent. A direct consequential objective of this project is to reduce the dependency of certain African operators on European and American telecom companies to facilitate and connect their inter-African regional communication requirements. The cost of this need results in the outflow of capital estimated to be in excess of US$300 Million per annum (Sub-Saharan Africa). The implementation of SAT-3/WASC/SAFE will enable a self-sufficient communications facility for inter-African needs that, in the medium to long term, will have the potential to unlock some of these resources for application in other sectors of Africa's economy where needed.

   Submarine Cable technology was selected as the preferred global communications medium as it provide leading edge technology with the added benefit of excellent reliability, that is not exposed to the same extent of external elements as terrestrial alternatives on the continent.

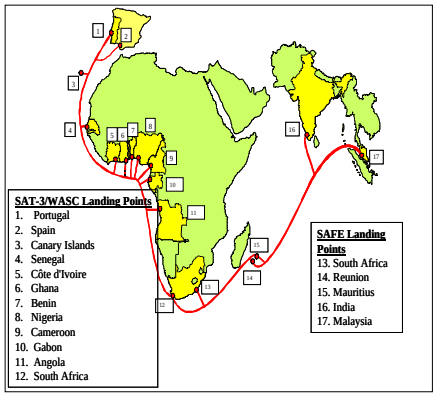
   SAT-3/WASC/SAFE was also designed to ensure that its perfectly positioned and integrated within the global fibre optic communications network to allow direct fibre optic connectivity to all continents of the globe, including Africa's biggest foreign and regional trade partners.

   Another important objective that was successfully achieved was to implement a project of such major magnitude within the limits of the financial resources available on the continent. This was managed through positioning the project simultaneously as a global as well as African regional solution, achieving an excellent balance between foreign investment and the need for African strategic ownership interest in this major global venture.

3. **Connectivity Provided through SAT-3/WASC/SAFE**: In addition to African connectivity, the project's termination points in Europe and Asia opens the door to a host of other submarine cable links to the Americas, Asia, Europe as well as all other destinations of interest to African and global communities. SAT-3/WASC/SAFE is perfectly positioned to offer reliable diversity and restoration to Middle East and other East to West links as being the only 100% submerged (wet) connection between Asia and Europe.

   Another indirect benefit resulting from the implementation of SAT-3/WASC/SAFE is that African landing point countries have embarked on initiatives to improve and upgrade their cross-border connectivity to land-locked countries to offer such countries the benefit of global connectivity via SAT-3/WASC/SAFE. During the recent past, the reality of SAT-3/WASC/SAFE have assisted in leveraging renewed interest from financial institutions in improving African inter-regional communication infrastructure, knowing that the potential of true global utilisation of such infrastructure is being supported through the global connectivity offered by SAT-3/WASC/SAFE.

4. **Funding of the SAT-3/WASC/SAFE Project:** SAT-3/WASC/SAFE is fully funded through the traditional consortium approach by a total of 41 global telecom operators. Due to the structure of the project and resultant significant interest in the obvious benefits offered by the project, full investment subscription became possible without the need for private equity involvement. Approximately 46% of the project is funded by African Operators with the remainder coming from most of the leading telecommunication companies around the world.



5. **Ownership/Operation of SAT-3/WASC/SAFE:** All of the SAT-3/WASC/SAFE equipment and infrastructure in all of the terminal stations are co-owned by all investors in the project, meaning that African operators participating in the project all have ownership and direct access of this key global communication link. More importantly, leading global telecommunication operators have entrusted African telecom operators to maintain and operate the equipment in most of the terminal station on their behalf, illustrating the extent of specialised skills that have been established on the continent a part of this project. Extensive financial resources was allocated towards the training of telecom personnel in all the terminal countries and transfer of skills were achieved through specialised training.

6. **Future plans for submarine cable systems around Africa:** SAT-3/WASC/SAFE offers a total ultimate capacity of 120 Gbit/s with 20 Gbit/s currently equipped on the SAT-3/WASC segment and 10 Gbit/s on the SAFE segment. Adequate funding of more than US$70 Million has been secured to implement an upgrade of the system that will increase the equipped capacity on the SAT-3/WASC segment to 40 Gbit/s and that of SAFE to 30 Gbit/s. This additional capacity is expected to be ready for service at around mid-2003.

   The possibility of an East African submarine cable to complete the inclusion of all of Africa into the global undersea communication network is currently under evaluation with feasibility studies being performed by Telkom SA. This study is expected to be expanded to some of the key potential terminal countries in East Africa soon.

7. **Issues and proposed Action:** There is need for cooperation between SAT3 and the African operators. There is need to sensitise big investors in the region.

8. **NEPAD Involvement:** NEPAD will facilitate the realisation of terresterial inter-connection projects – COMTEL, ECOWAS, SRII projects, promote the project and facilitate partnerships for effective utilisation of the cable network.

THE REGIONAL AFRICAN SATELLITE COMMUNICATIONS ORGANISATION (RASCOM) PROJECT

1. **The RASCOM Project**: RASCOM is a pan African satellite communications project designed to provide on a commercial basis, efficient and affordable telecommunications facilities and meet their radio and television broadcast requirements using a regional satellite communications system well integrated into existing and/or planned national network with a view to fostering the development of countries of Africa. It provides communications coverage for the whole continent. The regional African satellite communication organization (RASCOM) has its headquarters in Abidjan, Cote d'Ivoire. The African ministers of transport and communications created RASCOM in may 1992.

2. **Sponsors**: RASCOM has a total membership of 44 African countries that are owners and sponsors of the project and the rest of the 9 African countries may soon be joining RASCOM. However, the RASCOM system shall serve all the 53 African countries irrespective of membership.

3. **Current Status**: the implementation of the RASCOM dedicated satellite system for Africa is progressing well. A summary of the current status of the program is as follows:

   a) Orbital locations for satellites to be launched have since February 2002 been secured through ITU at 2.9°E.
   b) A project company, RascomStar-QAF Company, had been formed and registered in Mauritius in June 2001.
   c) The Strategic Partner, Alcatel Space Industries, has been selected.
   d) The Execution Agreement is being finalised for signature between RASCOM and Alcatel Spacecom for the construction of the satellite.
   e) A pilot project to test the Ground Terminals to be deployed for the RASCOM dedicated satellite system and to demonstrate in real conditions the functionality of the proposed solution to the network operators in Africa will be conducted before the end of 2002.
   f) Preparatory action has been undertaken to ensure that the RASCOM system has the critical mass required to make the system viable and sustainable by getting the pre commitments of operators, and development of applications to be used on the RASCOM system.
   g) RASCOM shall visit African telecommunications operators to confirm their pre-commitments and turn them into firm commercial contracts through negotiated mutual agreements before the satellite system becomes operational. RASCOM is also examining, together with stakeholders, the possible development of new applications, which shall extend the range of use of the RASCOM system in urban and rural areas in Africa.
   h) RASCOM has launched a RASCOM Assistance and support programme for African countries, RASPAC (RASCOM Assistance and Support Programme for African Countries), with the objective of ascertaining that the national telecommunications operators are ready to use effectively the RASCOM system when it is operational.

4. **Background**: Because of the very poor telecommunication interconnection among African countries and the enormous outflow of funds from of Africa due to transit charges for inter-Africa traffic transited outside Africa, a feasibility study for the deployment of a dedicated African satellite communication system was commissioned by African countries in 1987 and was funded by, among other institutions, the African development bank.

   In February 1991, the African Ministers in charge of telecommunications considered the conclusions of the RASCOM Feasibility Study that showed the project to be financially, technically and economically viable. The recommendation of the final report was adopted and a decision was made to create RASCOM. In May 1992, RASCOM was created. RASCOM became operational in 1993.

5. **Project Objectives**: the objective of RASCOM set up a terrestrial telecommunications infrastructure based on space technology which meets the telecommunications service requirements in Africa, and more especially provides telecommunications services to end-users at very reasonable costs by taking advantage of the economies of scale of the coverage of the RASCOM project. The specific objectives of the RASCOM project are as follows:

   a) To provide a full range of telecommunications services to end-users;
   b) To provide complete coverage of Africa, including remote and isolated location;
   c) To provide national long distance telephone calls at low cost;
   d) To establish direct links among all African countries;
   e) To provide and improve interurban communications within each country;
   f) To provide facilities for radio and television broadcast reception in each country as well as

exchange of TV and radio programmes between African countries; and

g) To provide limited intercontinental connectivity.

6. **Project Description**: The RASCOM system initially is composed of two satellites. Both satellites are dedicated satellites for Africa. RASCOM system is made up of two components, the space segment comprising the satellite and the satellite control and operating centers and the ground segment comprising of the network access stations and the ground multimedia terminals. it covers the entire continent and its associated islands.

   The Space Segment is using a geo-stationary satellite communication system that offers a wide range of telecommunications services such as trunking services (inter-urban or international links), universal access-direct to end-users (telephony, Internet, TV program reception, etc) are full connectivity (national, regional and transcontinental) over the entire continent. The system offers inter-operability of all networks using the system and caters for permanent and on-demand links, broadcasting services, rural integrated telephony and thin route trunking services. The RASCOM system will ~~be~~ operate both in C-band and Planned Ku-band. Coverage has been optimised to ensure that a single spot beam covers completely a country and provides better antenna performance in areas where transmission is handicapped by severe rain attenuation. It is fully integrated to the existing and/or planned networks in Africa.

   The Ground Segment is composed of the network access facilities controlled by network stations, which includes the ground networks, comprised of interconnection and trunking, gateways and ground terminals, necessary for providing the variety of services RASCOM will offer. These services include universal access to telephone, fax, low speed and high speed data, Internet including e-mail and reception of sound/TV, thin route trunking services, and leased-transponder services and video conference to support distance learning and tele-medicine.

   The ultimate capacity of the RASCOM system is designed to provide interconnection for over 500,000 ground terminals covering the whole of Africa. These small satellite terminals will enable African telecommunications operators to provide a variety of services (voice services, fax services, voice band data and Internet access) directly to end-users. The thin-route-trunking service, will provide direct interconnection, on a call-by-call basis, for transmission at low or medium rate between two switching stations located anywhere on the African continent. These connections are particularly well suited for inter-urban or international low traffic rate links using DAMA station. The leased-transponder services will cater for various services based on satellite transponder leasing on a continental scale. These include fixed link network services, high-speed data links, distribution of sound and television broadcasting services and other services such as private or corporate networks, satellite newsgathering, video contribution and distribution etc.

7. **Project Costs**: the cost of the space component of the RASCOM project is estimated at us$ 400 million for a two-satellite system. The first satellite shared with an existing satellite operator is estimated to cost us$260 million (out of which RASCOM shall pay us$130 million) and the second us$200 million. An additional us$ 70 million is required for the associated ground infrastructure. Funding for these elements are almost in place. It is estimated that the ground segment infrastructure that has to be established by users or operators will depending on the size of their networks and their development plans range between us$13 million and us$55 million. This investment will be spread over a 15-year period reflecting the development schedule of the ground networks in response to demand.

8. **Possible Financiers/Indicative Financing Plan**: the launching and operation of a dedicated satellite system for Africa is being accomplished through a strategic partnership arrangement supported by and execution agreement signed between RASCOM and Alcatel Spacecom. this approach was adopted to mitigate risks, facilitate financing, benefit from access to technical know-how and benefit also from technical capacity building and technological transfer at the initial stage. Alcatel Spacecom, will establish the RASCOMSTAR-QAF company together with the other partners, to finance, design, launch the space segment and operate two dedicated RASCOM satellite systems during the concession period of 10 years. Alcatel Spacecom will also design and develop small rural low-cost and other ground equipment and gateways for inter-working with the RASCOM system and the national networks. the African telecommunications operators will finance the ground segment in ach country, comprising of the gateways and the ground multimedia terminals. it is estimated that each participating operators will require us$ 5 –10 million as initial capital investment.

9. **Project Implementation**: RASCOMSTAR-QAF will undertake the financing, designing, developing, building, launching and operation of the dedicated satellite system for RASCOM. the strategic partner, Alcatel Spacecom, undertake by

mid 2002, the construction of the first satellite, upon signing of the contract with RASCOMSTAR-QAF company. it is estimated that the first RASCOM satellite will be in orbit ready for operations by end of 2004 or early 2005. the national telecommunication operators will implement the ground segment of RASCOM with the assistance of RASCOM through its RASPAC unit.

10. **Project Benefits**: the implementation of RASCOM will have a major impact, not only in the improvement of the provision of inter-African telecommunications services, but will also make possible, for the first time, universal access to services for the whole Africa, regardless of distance or geographical location. RASCOM specifically will provide:

    a) interconnectivity of all African countries resulting in saving in high transit charges for traffic routed via non-direct routes presently;
    b) the possibility of interurban links within each Africa country;
    c) TV and radio programme exchange among all African countries; and
    d) access to telecommunication services to all geographical areas of Africa, including remote rural areas at affordable levels of costs.

11. **Project Justification**: in an age where information is considered as a "factor of production", inadequate info-communication infrastructure is a very serious barrier to economic and social development. in this information age, Africa will remain an information "poor" continent, if its continent wide information infrastructure is not upgraded to the level of other well-developed region of the world. the existing ICT infrastructure in Africa and its connectivity is far below the need and is not efficiently and optimally exploited. there are very few direct links between African countries. at the national level in African countries, the majority of the population has no access to basic telecommunications services, interurban links are insufficient and of poor quality. the costs of extending service to rural and isolated areas are very high and beyond the resources o the African countries.

    The RASCOM solution addresses all these problems in one stroke simultaneously. it provides telecommunication access over the whole of Africa. it offers a comprehensive range of services, even to rural and remote areas at reasonable and affordable cost. a detailed technical and financial feasibility study had demonstrated that it is technical and economically viable.

12. **Issues and Proposed Action**: in order to accelerate the rapid deployment of the ground network, a programme has been conceived to assist African telecommunications operators/countries to ensure that they are fully prepared and ready to use the RASCOM system as soon as it is available. areas of assistance fall under the following categories:

    a) finance assistance in procurement: to enable them to benefit from the economies of scale;
    b) technical assistance: to plan, develop, upgrade and extend their terrestrial system so as to enhance the use of the space segment once it is available;
    c) training: in identifying and co-ordinating training opportunities in the operation and maintenance of both the ground systems and the space segment to be offered in all African countries and
    d) regulatory environment – facilitating the creation of an enabling harmonised regulatory environment for private sector participation. the goal is to facilitate the creation of a large base of users for telecommunications services that will be offered in the RASCOM system

13. **Involvement of NEPAD**: NEPAD will
    a) promote the project and facilitate access to affordable finance for the ground segment for national operators,
    b) facilitate the harmonization regulatory environment, and training;
    c) facilitate African and local private sector participation in the financing, deployment and operation of the ground segment through the ground infrastructure companies (GICs), and
    d) facilitate the participation of local private sector, in the medium term, to participate in the manufacture of antennas and other related equipment.

SADC REGION INFORMATION INFRASTRUCTURE (SRII) PROJECT

1. **Project name and Location:** The SADC Region Information Infrastructure (SRII) Project to cover all the 14 SADC member States

2. **Sponsors:** The Southern Africa Telecommunications Association (SATA), an association of fixed wire-line telecommunications operators.

3. **Current Status:** SRII, which started in year 2000 is in good progress with most of the transmission (information carrier) links in the south of Limpopo completed.

4. **Background:** In 1998/9 SATA members realised that the SADC Region needed to be connected to enable seamless information flow between countries. They further realised that implementation of ICT was only possible if telecommunications infrastructure was in place. The members then engaged a consultant who studied and came up with a regional network project. The project which covers only the transmission portion of the infrastructure, is designed to employ (mostly) optical fibre cable network and, to a lesser extent, digital microwave radio system. In 2001, SATA installed a Programme Manager to oversee the implementation of the SRII Project.

5. **Project Objectives:** The SRII Project is to cover the following objectives: a) to connect the Region with a network that the end-user should not worry on how the information is being routed; b) the individual networks that finally form the regional network should eventually be able to carry all information content without congestion; c) to limit the use of satellites as they are not cost-effective; and d) to have a harmonised network with minimum signal interference, if any.

6. **Project Description**: In summary, the project can be described as considering the following factors:

a) The Regional Telecom Network for interconnection between African countries has to be part of the national backbone network for transmission systems;
b) The Regional Telecom Network has to carry not only regional traffic but also national and international traffic.
c) Countries involved in this process have to have common understanding of the location, time schedule and technology concerning each cross border link.
d) Implementation of Regional Telecommunication Network for transmission systems has to be a process of evolution. Taking into considerations these requirements, additional activities were initiated during the study period and the "General Assessment Report for transmission systems" was prepared and presented at 3rd meeting of SATA Task Group held on 17-20 of August 1999,in Namibia. The SATA Task Group approved the "General Assessment Report for transmission systems" and hence SRII project.

The Project is Feasible and provides for the induction of the latest mature technology. It can be implemented in 3 phases.

7. **Project Costs:** The SRII Project is expected to cost about US$172. 6 million.

8. Possible Financiers/Indicative Financing Plan: The members of SATA

9. **Project Implementation:** The implementation of the SRII Project is expected to be into Three Phases as Short, Medium and Long-term solutions. The implementation period is six years commencing in 2000.

10. **Project Benefits:** The Project is feasible on an overall basis, from technical, economic and financial aspects. The Project has high profitability. With this Project SATA Members and other telecommunications network operators will be better positioned in the world of competitive environment. The state of the art mature technologies are being introduced. Network Management Tools are in place to ensure the connected transmission and switching systems are fully and efficiently utilised. The concept of Transit Centres is feasible as an option for better network reliability within the region. The Project economic analysis establishes that the profitability of the total investment is high.

11. **Project Justification:** The Feasibility Study Report confirms that the SRII project is indeed, technically, economically and financially feasible.

12. **Issues and Proposed Action:** The Action Plan is already in place under the coordination of a Regional Programme Manager.

13. **Involvement of NEPAD:** NEPAD will promote the SRII Project and facilitate access to funds for countries that are unable to meet the construction costs of the project.

DEVELOPMENT OF TELECOMMUNICATIONS EQUIPMENT MANUFACTURING IN AFRICA

1. **Sponsors:** ITU, UNIDO, ECA, ADB, RASCOM, ATU and sub-regional economic cooperation organisations.

2. **Current status:** In Africa, the ICT sector imports more than 95% of its equipment needs. This equipment, regardless of its complexity or lack of it, is routinely imported without any consideration as to whether some of it could be produced locally. It is all a 'turn key' approach at the expense of any local value added production activity or some form of development research in this area. Given the current momentum to embrace ICT as part of the development agenda, the need for ICT equipment is expected to continue growing for a long time to come. Africa with its weak financial base can ill afford to continue importing all its equipment requirements for ICT. In fact, production of a lot of this equipment being imported is not so complicated and there is growing realisation that it could be produced locally at a cheaper cost.

3. **Background / Rationale**: Most African countries import all their telecommunications equipment except in a few rare cases in North Africa, Kenya, Nigeria and Zimbabwe which manufacture a certain amount of equipment. Imported items range from ordinary poles, cables and telephone sets to telephone exchanges and transmission systems. This gives rise to the following disadvantages, which prevent African telecommunication operators from properly developing and operating their telecommunication networks. In general, imported equipment is not always suited to the African environment (high humidity and temperatures, dust, lack of primary energy sources in some places, etc.). Furthermore, most of this equipment normally has shorter equipment life resulting in a high investment amortization rate. In addition to this, telecommunication equipment tends to be from numerous sources, which often results in maintenance and spares management problems. Lack of local or regional manufacturing capacity and inadequate exploitation of the few existing possibilities for producing some telecommunication equipment and accessories continues to deprive the continent of any chance of engaging in long-term planning and for taking decisions on the technology required for developing their own telecommunication networks.

   The establishment and expansion of networks and the choice of products and technology are in principle planned in all their aspects - technical, financial, human resources - to enable the operational objectives to be achieved, an essential condition if the investment is to be profitable and the operator is to increase its capacity to finance its investment projects itself. In the present situation, African telecommunication operators do not have much control over the general supply and planning situation, for lack of a minimum regional production capacity and lack of co-ordination in exploiting existing possibilities. The regional manufacturing potential is not well known even at the national level. Even the products that could be produced at competitive cost by numerous local (metallurgical, plastics, electrical engineering, etc.) industries continue to be imported and paid for in foreign currency. This project seeks to explore and develop this possibility and opportunity to ensure a better development of the industry in the continent.

4. **Project Objective:** The objective of the project is to develop a framework for the manufacture of basic telecommunications equipment in Africa to ensure the availability of such equipment in the continent at affordable prices to support the development of the industry in the continent.

5. **Project Description:** The project would entail a comprehensive technical and economic study to identify, justify and prepare a broad outline of specifications for the design and local manufacture of telecommunications equipment. There will be a preliminary survey in each country to identify existing industrial projects and existing plants. The results will be sent to governments as well as interested private and public operators and manufacturers. In addition to this, a regional technico-economic feasibility study will be undertaken on the basis of the long term needs of the countries in various telecom equipment in order to assess the local production needs. A regional program of action will be developed from here. Assistance and guidance will be provided to interested operators and manufacturers.

6. **Project Cost Estimates:** USD3.0 million

7. **Possible Financiers:** ITU, NEPAD, ADB

8. **Implementation**: Implementation Period = 3 years. The project would be executed by ITU. An International Technical Team under supervision of the Project coordinator will execute the project. Project coordination will be through a team made

up of representatives of the co-sponsors of the project.

9. **NEPAD's involvement**: NEPAD will facilitate forging partnership for the project. This may include ITU, OAU/AU, ECA, ADB, ATU and RASCOM other sub-regional, regional and international institutions and private sector.

ICT POLICY AND REGULATORY FRAMEWORK AT REGIONAL LEVEL

1. **Project name and location**: This project is designed to facilitate the harmonisation of the ICT Policies and the regulatory framework of the African countries. The Project has been conceived by the ATU Secretariat, Nairobi Kenya but enjoys wide support among sub regional institutions such as SADC, COMESA, ECCAS, ECOWAS, and SENSAD.

2. **Sponsors**: The main sponsor of the Project is the African Telecommunications Union (ATU). The Project is co-sponsored RECs.

3. **Current Status**: The need of the Project has been taken up at various ICT fora, however the Project is a new project and is at the design and resource mobilisation stage.

4. **Background**: Sector reforms within the region vary from one country to another. Although the majority of African countries have established independent regulators, in some of these countries, considerable reform still needs to be effected. Even where sector reforms have achieved significant levels of development, key areas remain to be addressed including information society policy, various E-laws, policies relating to advanced info-communication services (tele-medicine and tele-health, tele-education, tele-agriculture, tele-trade and E-commerce, migration policies to 3G technologies). The ICT industry is a dynamic industry and is undergoing major and continuing transformation. Consequently, policy and regulatory development has to maintain a similar dynamic pace. The creation of a harmonized and conducive environment for the development of the sector has to, therefore, be accorded high priority.

5. **Project objectives**: The principal objective of the project is to assess the status of ICT policy and regulatory environment in each of the sub regions and to develop harmonized policies and regulations that could be adopted commonly in each of the sub regions of Africa. The scope of the Project will encompass the development and implementation of an effective policy framework, an effective legislative environment, effective regulatory institutions, the development of appropriate E-laws, and the establishment of regulatory associations and regional coordination mechanisms.

6. **Project Description**: The Project will kick off with a scoping study and analysis of the existing state of development of ICT policy and regulatory framework of each sub region to determine the scope of harmonization needed. Issues that the study and harmonisation exercise will treat include the following:

a) In the area of policy framework: Separation of government, regulatory and operator duties where this has not been affected, Establishment of independent regulators, Establishment of independent regulatory institutions, Standards for universal services and access to services, Creation of investor friendly environment, Preparation of convergence of technologies, Liberalisation and private investment;

b) In the area of Legislative framework: Enacting legislation to reflect harmonized policy framework in the region, Creation of a pool of expertise in the legislative area;

c) In the area of Regulatory systems: Establishment of national regulatory institutions where these do not exist, Establishment of regulatory associations at sub-region and regional levels, Establishment of mechanism of continental coordination.

Based on the analysis and in close collaboration with the REC's, appropriate common guidelines will be produced on: Harmonized regional ICT policies Harmonized national, sub-regional and regional legislative provisions, New or strengthened regulatory structures, Development of specialized E-laws to meet growing and new and innovative services, Establishment of sub-regional and regional associations

The task may further include elaborating draft specific rules and regulations needed to enable regulators to the ICT sector.

The project will provide resources for sub regional meetings and workshops where these common guidelines and rules and regulations will be discussed and adopted. The Project will also assist in the creation of a pool of expertise in the legislative area and in the establishment of mechanism of continental coordination and cooperation in regulatory activities.

7. **Project costs**: It is envisaged that the principal cost components will be to cover inter alia the following activities: Field

surveys to determine development specifics, Consultants to undertake the various tasks and to determine the relevant time frames, Workshops and seminars for capacity building and strategy development and Guides and reference manuals and tools. A tentative cost estimate for project cost comes to US$1,000,000.

8. **Possible Financiers/Indicative financing plan**: It is envisage financing will be mobilised from Multilateral and bilateral donors and from the Private sector.

9. **Project Implementation**: African Telecommunications Union (ATU), a public-private sector institution with a mandate to coordinate telecommunications development in the region will be the executing agency for the project. The project will be under the direct supervision of the ATU.

10. **Project Benefits**: At the completion of project activities the sub region will have Harmonized regional ICT policies, Harmonized national, sub-regional and regional legislative provisions, New or strengthened regulatory structures, Specialized E-laws to meet growing and new and innovative services, Established sub-regional and regional associations, Enhanced and attractive investment climate, Increased capacity for human resource development, Higher capacity for provision of ICT service and access.

11. **Project Justification**: The world is moving towards an information-based economy where information infrastructures and services are playing an increasingly crucial role. The information economy of the future requires reliable access to an efficient and affordable range of information and communications services to support the activities of business, industry, trade, individual users, communities, and nations. In consequence the role of ICT has been enhanced in supporting social, cultural, and economic performance, both nationally and globally. African countries wish to accelerate the development of their national and regional information and communications infrastructure to provide reliable, effective and affordable services. Harmonised and compatible regional policies, legislation, rules, standards, and procedures at region-wide greatly facilitate the attainment of this goal. A harmonized policy on the liberalization of information and communications services and infrastructure, and the establishment of appropriate and effective national and regional regulatory frameworks create a favourable environment for full private sector participation, and competition. It releases the forces of the free market and the profit motive and will lead to the optimisation of quality of service, investment, and price in the ICT sector.

12. **Issues and Proposed Action**: The project will have 5 sub regional components in line with the number of REC's involved. The role of coordination in the initial survey and the adoption process of the harmonised policies, and rules and guidelines, rules will be considerable. ATU will need to be strengthen so that it can carry out it role effectively.

13. **Involvement of NEPAD**: NEPAD will facilitate access to financing by for the project.

PROGRAMME TO BROADEN AND ENHANCE AFRICA'S PARTICIPATION IN THE GLOBAL ICT POLICY AND DECISION MAKING FORA.

1. **Project Name and Location:** Programme to Broaden and Enhance Africa's Participation in the Global ICT Policy and Decision Making Fora.

2. **Sponsors:** ATU, ITU, ADB, TRASA, UNECA, RECs

3. **Current Status:** Thus is a new project proposed for implementation within the Short-term Action Plan of NEPAD.

4. **General Background:** The impact of the digital divide on the socio-economic development of developing countries has in the last couple of years been a key development agenda at major international fora. The effective participation of developing countries in the global ICT policy and decision-making fora and institutions is one of the key issues being singled out for attention. For example, both the UN ICT Task Force and the Digital Opportunity Task Force (DOT Force) identify as one of their key priority action point: the need to establish and support universal participation of developing countries in addressing new international policy and technical issues raised by the internet and ICTs.

   Key policy decisions made at various global fora have implications on the development and utilisation ICTs in Africa countries. For example, decisions on frequency allocation and management and those relating to the setting of standards directly affect decisions and policies made by African countries in these areas. In addition, global policy decisions made on trade liberalization in the sector have impact on African countries. Despite the fact that the decisions, agreements and policies made at global ICT policy and decision making fora do have major impact on Africa countries, these countries are the least represented at these global fora. African countries face a number of challenges and barriers to participation in the global ICT fora and institutions, namely, financial bottlenecks, lack of the necessary expertise to meaningfully participate and contribute in these fora; lack of access to timely information on these global events; and institutional barriers. There is a need to facilitate the broadening and enhancing of Africa's effective participation in these global ICT policy decision making fora so as to ensure that Africa's interest are well represented and coordinated.

5. **Project Objectives:** The objectives of the project are a) to increase, broaden and enhance Africa's participation in the global ICT policy, decision making fora and institutions, b) to improve Africa's technical capacity and expertise to effectively contribute to and participate in the technical global policy and decision making fora and institutions, c) to coordinate, strengthen and mobilize Africa's negotiation capacity and collective bargaining power to influence global ICT policy decisions and agreements of relevance to African countries, and d) to facilitate the process of establishing and enforcing Africa's common position on key global ICT policies, decisions and agreements.

6. **Project Description:** The project is designed to assist African countries to address among other things the challenges that inhibit their effective participation and influence in the global policy and decision making fora, namely,

- The limited bargaining power and leverage of African countries in global ICT policy, decision making fora compared to countries of other regional blocs;
- The absence of coherent and consistent position by African countries on major global ICT policy issues, decisions and agreements;
- The lack of experience, technical capacity and expertise in African countries to effectively participate in the global ICT policy, decision making fora and institutions;
- The absence of effective cooperation amongst African countries on how to engage in collective negotiation on global policy issues for their mutual benefit and
- The extra-African alliances that in some cases makes it difficult for African countries to act as a group to present a common position on issues at global fora;

This initiative is also aimed at putting in place mechanisms, programmes and structures to facilitate African countries through relevant regional and sub-regional institutions to address some of the key barriers to their effective participation in the global ICT policy and decision making fora and institutions. These include technical barriers, informational barriers, financial barriers and institutional barriers.

Some of the key activities of the project will involve:

- Organizing and facilitating Technical Briefing Sessions, Seminars and Workshops that will equip Africa participants of future global ICT fora and meeting with the necessary know-how and expertise to: (i) effectively participate in relevant global fora; (ii) comprehend the details of the deliberations and the proceedings of the event; (iii) effectively contribute to the discussions of the fora and (iv) learn/benefit from the proceedings of fora.

- Putting in place mechanisms to assist relevant African institutions and experts involved in global ICT policy and decision making issues to acquire and have access to relevant and timely information on key global ICT policy events and meetings.
- Putting in place a programme to identify and sponsor on a regular basis a critical mass of African experts, as well as national, sub-regional and regional institutions involved in global ICT policy issues to attend and participate in major regional and global ICT policy and decision making events and meetings.
- Carrying out regular studies and surveys targeted at establishing and monitoring the positions of key African stakeholders on crucial global ICT policy issues of relevance and importance to African countries
- Organizing pre-fora Africa Common Position meetings and dialogues to establish African's stand on major issues and put in place mechanisms to ensure that these common positions are represented at relevant global fora
- Putting in place and implementing on an on-going basis a research programme on the impact of global ICT policies, decisions, and agreements on African countries and institutions
- Designing and implementing information dissemination programmes and initiatives to inform relevant national, sub-regional and regional institutions on global ICT policies, decisions and agreements

7. **Project Costs:** USD 20 million over a period of 4 years

8. **Possible Financiers/Indicative Financing Plan:** ITU, ADB, NTO's,, RECs, International Agencies

9. P**roject Implementation:** ATU in collaboration with UNECA, ADB will be the executing agency of the project.

10. **Project Benefits:** The project will contribute to enhancing and broadening the effective participation of African countries in the global ICT policy and decision -making fora and institutions. It is anticipated that the project will in the future enhance Africa's capacity to contribute to and influence key global ICT policies and decisions that have implications for African countries in areas like: telecommunication regulatory, policies, standards and agreements; trade policies and agreements; Internet standards, policies and governance decisions; intellectual property rights decisions and agreements; trade policies, agreements and trade negotiations; and domain name systems (DNS) policies, technical standards and decisions.

11. **Project Justification:** The effective participation of African countries in the global ICT policy and decision making fora will (i) lead to these countries registering their position, making their case, and making meaningful inputs and contributions to the global policy and decision making process and (ii) result in African countries translating the gains made at these fora into actions on the ground to make meaningful and significant impact on their national development process.

12. **Issues and Proposed Action:** Efforts to facilitate and enhance the effective participation of Africa countries in the global ICT policy scene as per this initiative will be need to be directed at: (ii) actions aimed at addressing the key barriers to participation namely: technical, informational, financial and institutional barriers and (ii) actions targeted at ensuring that the participation of African countries in the global ICT policy and decision making fora does have the likelihood to yield results on the ground to facilitate their socio-economic development efforts.

    Also issues relating to developing detailed project proposal to guide the implementation of the project within the Short-term Action Plan will need to be addressed. Such a project proposal should address among other issues (i) the implementation of the project activities listed in (6), (ii) project costing schedules; and (iii) institutional arrangement issues pertaining to the coordination of the project.

13. **Involvement of NEPAD:** NEPAD would (i) initiate, promote and support the implementation of the project; (ii) promote and facilitate Africa's effective participation in the global ICT policy and decision making fora through this initiative; (iii) serve as a forum for organizing Africa's common position on global policy issues and for coordinating the mobilization of Africa's collective power and negotiation capacity and (iv) facilitate the mobilization of financial resources from major donor, bilateral and multilateral agencies as well as international groupings and economic blocs to support the implementation of the project.

THE ICT HUMAN RESOURCE CAPACITY DEVELOPMENT INITIATIVE FOR AFRICA

1. **Project Name:** The ICT Human Resource Capacity Development Initiative for Africa

2. **Sponsors:** ATU, ITU, AFRALTI, SATRA, UNECA, RASCOM, Ecole Superieure Multinationale des Telecommunications, African Universities

3. **Background:** The development and exploitation of ICTs within the society and economy in African countries needs to be supported by the requisite human resources in key skill areas. African countries currently lack human resource capacity in critical sectoral areas to support and facilitate ICT infrastructure deployment, rollout and exploitation initiatives. For example, there is shortage of skills in a number of African countries to support initiatives aimed at the design, deployment, installation, operation, and maintenance of national telecommunication and communications network infrastructure and systems.

   The consequence of this is that numerous major regional, sub-regional and national ICT infrastructure development projects are seriously constrained to the extent of either being delayed, postponed or poorly implemented. Most African countries are experiencing acute shortage of critical ICT professionals including: telecommunication engineers/technicians; telecommunication regulatory and harmonization experts, computer and communications network engineers administrators and technicians; electronic engineers and technicians; computer engineers, scientists, and technicians; and applications and systems engineers, programmers, administrators as well as software and content developers and engineers.

   On-going and planned national, sub-regional, and regional ICT infrastructure deployment, rollout and utilization initiatives will require a critical mass of ICT professionals in the technical, managerial, and operational areas. There is a also the need to take into account the human resource requirement implications of national information and communications infrastructure plans which number of Africa countries are either in the process of developing or implementing.

   The wave of liberalization and reforms of the telecommunications sector in African countries in the last decade gave rise to the setting up regulatory and licensing and authorities and agencies. Most of these agencies are finding it difficult to deliver on their mandate because they do not have the required technical and managerial personnel and capacity to support their licensing, regulatory and technical functions and activities.

Furthermore because of rapid advances in information and communications technologies, a number of African telecommunications and communications service providers and operators and major ICT utilization organizations in the public and private sectors are finding it difficult to continuously upgrade the skill of their ICT staff. The implications of this is that a number of African countries are lagging behind in upgrading and modernizing their networks and systems to reap these technological advances to improve service quality, reduce costs and made their services affordable.

4. **Project Objectives:** The specific objectives of the project are:

a) To improve the human resources capacity of African countries in key skill areas required for supporting ICT infrastructure development, deployment, rollout, facilitation and exploitation initiatives and projects on the continent;
b) To train a wide range of technical, managerial and other ICT professionals required for supporting and facilitating the development of the ICT sector and industry in African countries;
c) To enhance Africa's capacity to develop, produce, manufacture and assembly ICT products and services as a step towards developing the local ICT sector and industry in African countries;
d) To compliment, improve, upgrade and expand the training and research capacities and facilities of the specialist ICT training institutions, universities and research institutes in Africa;
e) To strengthen the capacities of sub-regional and regional mandated ICT institutions and member state organizations involve in facilitating and supporting ICT human resource development and training initiatives in Africa;
f) To improve the ICT R&D capacity of African countries;
g) To address capacity development needs of policy-makers and regulators in African countries;

h) To establish, support and facilitate a network of advanced-level ICT training and R&D institutions in African countries with the aim to facilitate cooperation and collaboration and between the institutions;

i) To support and facilitate ICT human resource development related studies including those aimed at an Annual Assessment of the ICT Human resource needs of African Countries and producing Directories of ICT training institutions in Africa, and African ICT experts.

5. **Current Status:** The ICT sector, especially the telecommunications and communications sub-sector in African countries has undergone a number of major changes in the past few years as a result of the rapid technological advances, sreforms, restructuring and liberalization of the sector; privatization of national telecommunications companies, and the establishment of regulatory bodies among others. These changes have resulted in increased demand for highly skilled ICT personnel in telecommunications and communications in a number of African countries.

One of the steps taken to address this shortfall in critical skills, the ITU in the 1990's set up two Centers of Excellence in Telecommunication in Africa, namely AFRALTI based in Nairobi and Ecole Superieure Multinationale des Telecommunications based in Dakar to provide advanced-level technical training and human resources development for African countries. These centers of excellence in addition to a number of African universities, colleges and other public and private Telecommunications Training Centers and Institutions have been providing advanced level ICT training in areas like: telecommunications and communications and computer network systems design, installation and maintenance, network planning and management; spectrum management; telecommunication policy, licensing and regulation; universal access and service; rural connectivity etc. A number these institutions are also offering advanced-level training programmes in: Spectrum Management for Operators and Regulators, Licensing and Regulatory Policies and Functions, Internet Policy and Regulation, Activity Based Costing, VoIP Networks, ATM Networks, Consumer and Competition Policies, Policy and Regulation (licensing and interconnection), GSM Networks and in Internet-based solutions and applications systems.

This project is designed to supplement current efforts and initiatives directed at advanced ICT training and R&D work in African to meet the shortfall in critical skills in these areas.

6. **Project Description:** The project is designed: (i) to meet the short-fall in key ICT skills in African countries by developing and producing a pool of ICT professionals in all key areas (ii) to support initiatives aimed at continuously upgrading the still of ICT professionals in African countries and (iii) support ICT related R&D work in African's Institutions of Higher Learning and Research Institutes to improve African research capacity to develop and apply indigenous innovative solutions in ICTs and aid the process of developing Africa's ICT industry and (iv) supporting institutional capacity building and strengthening of ICT mandated sub-regional and regional institutions involve in human resource development initiatives.

7. **Project Costs:** The total cost of the project is estimated at USD 80 million for 4 years.

8. **Possible Financiers:** ADB, NEPAD, ITU, RASCOM, UNECA, ESA, INTELSAT, INMARSAT

9. **Project Implementation:** The project will have a number of collaborating executing agencies including: (i) specialist advanced-level training institutions like: AFRALTI, Nairobi, Ecole Superieure Multinationale des Telecommunications, Dakar; the Information Technology Center for Africa (ITCA) of UNECA; Centre Informatique Communautaire, Lome; and Institut Africain de l'Informatique, Libreville (ii) National Telecommunication Training Institutes (iii) a selection of African Universities, Polytechnics and Colleges involved in ICT R&D work and in ICT professional level education and training in areas like: Computer Science and Engineering; Telecommunications Engineering, Electronic Engineering, Software Engineering, (iii) ICT mandated sub-regional and regional institutions involved in human resource development initiatives e.g. ATU, TRASA and (iv) RECs involved in facilitating ICT human resource development initiatives.

Some of the implementing agencies like AFRALTI, ATU, TRASA and some of the Universities already have specific projects in place for implementation under this initiative. On the whole, it is envisaged that each of the

identified participating implementing agencies will have the responsible for implementing a specific sub-component of the initiative.

10. **Project Benefits:** The project will

a) Facilitate the development of the required critical ICT human resources for supporting sub-regional and regional initiatives aimed at ICT infrastructure development, deployment, roll-out, facilitation and exploitation in African countries;
b) Contribute to strengthening the ICT training and research capacity in Africa;
c) Enhance Africa's capacity to develop, produce, manufacture and assembly, install and maintain ICT equipment, products, systems and services (telecommunications and communications systems and services); and
d) Facilitate the development of the local ICT sector and industry in African countries;

11. **Project Justifications:** The lack of capacity in the area of critical human resources has been identified as a major obstacle to the development and the exploitation of ICTs in African countries. The project will make a substantial contribution to addressing the ICT skill shortage in key areas.

12. **Issues and Proposed Actions:** There is need to develop a detailed project implementation proposal to guide the implementation of this project within the NEPAD Short Term Plan. This project proposal should document among other things details relating to: designated training and research institutions of the project; the subject and skill areas of focus of training to be undertaken by each of the designated institutions; areas of focus of R&D work to be undertaken by the designated universities, research institutes and advanced specialist training institutions; project costing schedules; institutional arrangement issues pertaining to project coordination and where necessary the specific numbers (quotas) of skilled personnel to produce for each identified skill area within the time-frame of the Short-term Action Plan.

13. **Proposed Involvement of NEPAD:** NEPAD has identified human resource development especially in the area of ICTs as a key project area. NEPAD would (i) promote and facilitate the overall implementation the project. (ii) promote and seek support for the implementation of the project at major meetings of donors, bilateral and multilateral agencies as well as at meetings of major economic blocs; and (iii) facilitate the mobilization of financial resources for the project.

STRENGTHENING OF AFRICAN TELECOMMUNICATIONS AND ICT INSTITUTIONS

1. **Project**: Strengthening of African Telecommunications and ICT Institutions

2. **Sponsors**: The primary sponsors of this project are the member countries of the African Telecommunications Union as well as the sub region organizations dealing with ICT such as the various associations of regulators and operators.

3. **Current Status**: The African institutions established to promote cooperation and coordination of the development of telecommunications and ICTs have problems operating effectively due to lack of resources, capacity and facilities needed for their efficient functioning.

4. **Background**: It is a well-known fact that the low level of development of the ICT infrastructure in the continent is a major barrier to its social and economic progress. To remedy the situation, African countries have made great effort in devoting a substantial portion of their meager resources to the development of the ICT sector. However, the African region still remains the least developed of all the regions of the world. ICT, in particular telecommunications, requires connectivity and interoperability of networks at national, regional, and global level. This has entailed the establishment of various African regional and sub regional institution to facilitate interconnectivity and operability and to promote cooperation and coordination in other operational matters such as training, network maintenance and management and numerous other issues that require coordination.

   A prime example of such regional institution is the African Telecommunication Union. The African Telecommunications Union (ATU) is a specialized agency of the Organization of African unity (OAU) in the field of telecommunications. It was established on 7th December 1997 and currently has a membership of 46 member states. The objectives of ATU are, among others, a) to promote the development and adoption of appropriate African Telecommunications Policy and regulatory frameworks; b) to promote human resources development in the field of info- communications; c) to promote the establishment of info-communications industries; d) to co-ordinate the strategies and positions of member states in preparation for and at international meetings; e) to promote and encourage the exchange of information, expertise, and technology relating to info-communications for the benefit of all member states and Associate Members; f) to promote regional co-ordination in areas of projects, value-added services, technical standards and harmonization of tariffs.

   However, ATU has been unable to carry out these functions due to lack of resources and facilities that are necessary to fulfil it obligations as per its constitution. Since its inception, ATU has been facing a number of constraints, which have impacted seriously on its ability to meet the challenges facing the African Continent. In particular, the rapidly evolving ICT environment, created by the technological revolution has changed the market structure and has lead to major sector restructuring and regulatory reforms worldwide in order to harvest effectively the benefits of the ICT revolution. These changes greatly amplify the need for and the role and importance of the African ICT institutions. Without the necessary resources and support, African institutions such as ATU will not measure up to the challenge. The situation is similar for the various other regional and sub regional institutions that African countries have established. It is therefore important remedy this situation so that Africa may benefit fully from the ICT revolution and bridge the "digital divide" that denies it the full benefits of ICT.

5. **Project Objective**: The basic objective of this project is to strengthen the capacity to function of the various African regional institutions through, a) upgrading the human resource capability and capacities of these institutions through various forms of training relevant to their function; b) providing the necessary facilities needed for their efficient operation such as premises and ICT equipment etc; d) providing financial and other material resource required to carry out their operational functions such as organizing and coordinating meetings, workshops, and dissemination of data and information etc

6. **Project Costs**: It is estimated that the project will cost a total of US$ 15 million of which US$5 million will be for the ATU and the balance for other African institutions.

7. **Project Description**: The project is directed specifically at strengthening African Regional institutions including: African Telecommunications Union (ATU); Telecommunications Regulators of Southern

Africa (TRASA); Southern Africa Transport and Communications Commission (SATCC); African Advanced Level Training Institute (AFRALTI), Nairobi; Ecole Supérieure Multinationale des Télécommunications, Dakar ; Institut Africain de l'Informatique, Libreville. These institutions are vital to the development and application of ICT in Africa. The institutions have to train their own instructors before they can offer training to the large size of skilled manpower that the continent will need to plan, design, install, maintain and operate the ICT infrastructure. The training facilities will also need upgrading to keep in step with the ever-evolving ICT technologies. This applies not only to the training institutions but also to the institutions established for cooperation and coordination such as the ATU. The project is therefore designed to provide the human, financial and material inputs that these African regional institutions need in order to meet the challenge of technological development in the ICT field.

8. **Project Benefits**: The project, in the medium to long term will ensure that Africa has: a) the capability and capacity to design and implement appropriate Telecommunications Policy and regulating frameworks; b) capability and capacity to produce the number and quality of the human resources that Africa needs to design, install and operate its info-communications infrastructure; c) enhanced the possibility for the establishment of info-communications industries; d) the capability to co-ordinate the strategies and positions of member states to influence global policies and adequately negotiate concessions most conducive for the continent; e) capability and capacity to ensure effective exchange of information, expertise, and technology relating to info-communications for the benefit of all countries. In short-term, the project will enable Africa to produce the human, financial and material inputs that the regional institutions need in order to meet the challenge Africa faces due to the rapid technological evolution in the ICT field.

9. **Possible financiers/Indicative Financing Plan**: It is envisaged that the project would be financed from the following sources: a) Regular contributions of the Member States(with dues paid fully and on time); Multilateral and bilateral donor funding; and Private sector Participation.

10. **Project Implementation**: The project will have several components in line with the different institutions and their different mandates. African Telecommunications Union (ATU), a public-private sector institution with a mandate to coordinate telecommunications development in the region will be the umbrella executing agency for the project.

11. **Project Justification**: The project is the foundation for the capacity building of the skilled manpower of Africa, as the strength of its manpower development institutions will be reflected in the quality of the skilled manpower of the continent. The project is also critical for the continent wide success of the extensive reform process being undertaken in the areas of sector policy, liberalization and sector restructuring and the consequent regulatory framework that is put in place.

12. **Issues and Proposed Action**: Most of the important African institutions are spread out throughout the continent. It will enhance its success if a centralized coordination arrangement could be put in place, this role could be given to ATU or even to ITU.

13. **Involvement of NEPAD**: The project has yet to find the funds required to implement the Project. NEPAD would facilitate mobilisation of financing for the project.

CONTINENTAL UMBRELLA INITIATIVE TO FACILITATE THE UTILIZATION AND EXPLOITATION OF ICTS IN AFRICAN COUNTRIES

1. **Project:** Continental Umbrella Initiative to Facilitate the Utilization and Exploitation of ICTs in African Countries.

2. **Project Sponsors:** UNECA, ADB, RECs

3. **Project Description:** The ultimate aim of bridging the digital divide as per African countries is to facilitate Africa's socio-economic development through the deployment and exploitation of ICTs. This project is designed to implement a number of ongoing continental and regional ICT exploitation and utilization initiatives to aid the process of spreading the use and the exploitation of the technologies within African countries. Some aspects of each of the continental umbrella initiatives are being implemented at national, sub-regional or regional levels. These are either at the feasibility stage, pilot stage, or full implementation stage. The initiative is made up of six separate constitute projects, namely: **The African SCAN-ICT and E-Readiness Initiative; The African Regional Telemedicine Initiative; The Electronic Governance & Government Initiative for Africa; The African Electronic Commerce and Trade Initiative; The African Regional Tele-education Initiative; and The Africa Content Development Promotion Initiative**

   Each of these initiatives will be implemented as a separate *continental umbrella initiative*. For each of these initiatives, implementation will be carried out by a number of collaborating participating national, sub-regional (e.g. RECs), regional (e.g. ECA, ADB, ATU) agencies or orgaisations. Each of the participating entities/organisations will implement (individually or in collaboration with others) a section or an aspect of the relevant continental umbrella initiative. For example, a national participating entity (e.g. a National Schoolnet Agency) as part of the continental umbrella Tele-education initiative will have the responsibility for implementing their national Schoolnet project.

   The purpose of each of the continental umbrella initiatives is to provide a continental facilitating and partnership framework within which the various relevant national, sub-regional and regional initiatives can be coordinated, facilitated and supported to speed up their implementation and ensure their sustainability. The goal is to mobilize and pool resources, draw-on and share experiences and best practices to facilitate the implementation and replication of the various national, sub-regional and regional projects constituting each of the continental umbrella initiatives. It is envisaged that for any of the proposed initiatives, the principle of variale geometry will apply with respect to the number, geographical focus (national, sub-regional or regional) and the implementation stage (pilot phase/stage, feasibility stage, full implementation stage) of its constituent projects. It is anticipated that as some projects under a given initiative are completed, others will be started and taken and incorporated as new projects of a given umbrella initiative. It is envisaged that at any given time, a number of parallel projects at various implementation stages representing various geographical areas will be on-going under a given continental umbrella initiative.

4. **Project Objectives:** The overall objective of this initiative is to facilitate the process of rapid deployment, utilization and exploitation of ICTs within the society and the economy of African countries. The specific objectives of the initiative are to: (i) support, and facilitate the implementation of existing on-going national, sub-regional and regional initiatives; (ii) initiate, support and facilitate new national, sub-regional and regional projects for implementation by participating implementing entities; (iii) facilitate and coordinate the mobilization and pooling of resources, to support the implementation of various projects and initiatives; and (iv) provide a framework for facilitating the exchange and sharing of experiences and best practices among participating implementation entities.

5. **Current Status:**

a) **The African SCAN-ICT and E-Readiness Initiative:** A pilot SCAN-ICT project supported by UNECA and the IDRC is currently on-going in six pilot countries namely: Ghana, Morocco, Ethiopia, Uganda, Mozambique and Senegal. The pilot phase is due to end by June 2002 and it is anticipated that the project will incorporate other African countries during the full implementation stage. The proposed African SCAN-ICT and E-readiness project would be a suitable framework within which to launch and implement the project on a continental basis after the conclusion of the pilot phase.

b) **The African Regional Telemedicine Initiative:** A number of African countries are

currently implementing pilot Telemedicine projects as part of their national ICT deployment and exploitation plans and programmes. For example, countries like: Senegal, Uganda, Morocco and others have implemented small-scale pilot initiatives in this area. There is currently no sub-regional or regional telemedicine project on-going in Africa. It is anticipated that the proposed African Regional Telemedicine project will serve as a continental umbrella initiative to facilitate and speed up the implementation and deployment of telemedicine systems in a number of African countries during the time-frame of the Short-term Plan.

c) **The Electronic Governance Initiative for Africa:** Few African countries have pilot initiatives aimed at electronic governance. There is currently no sub-regional or regional initiatives in this area and the vast majority of African countries are not implementing initiatives in this area. The Electronic Governance Initiative for African will serve as an ideal vehicle to launch, facilitate and support the rapid roll-out of e-governance applications in the vast majority of African countries.

d) **The African Electronic Commerce and Trade Initiative:** Electronic commerce and trade is yet to make an impact in African countries. Very few African countries currently have the means and the resources to implement and facilitate electronic commerce systems. There are pockets of pilot projects in a number of countries mainly focusing on selling local handicrafts and tourism services through other intermediaries on the Internet. These intermediaries are required in most cases to handle electronic payment and settlement transactions. It is envisaged that the proposed African Electronic Commerce and Trade Initiative will provide a suitable framework for mobilizing the necessary resources to rollout electronic commerce and electronic trade applications in the majority of African countries.

e) **The African Regional Tele-education Initiative:** Two broad types of initiatives are envisaged: (i) the computers-in-schools initiative, which incorporates, schoolnets and (ii) electronic distance education initiatives directed mainly at higher learning institutions like the universities and colleges. Currently a number of African countries like: Egypt, Ghana, South Africa and Uganda, have been experimenting with the Schoolnet concept using mainly the Internet and its resources. Some other countries have also started pilot initiatives most of which are small-scale and are at their early stages. There is an African Schoolnet initiative coordinated from South Africa which is also in its early stages of development. Some universities and colleges in a number of African countries are also experimenting with some form of electronic distance education and virtual learning systems at the rudimentary level. The African Virtual university project which is an on-going regional project involves a number African universities but the project is yet to make a major impact on African university campuses.

f) **The Africa Content Development Promotion Initiative:** Africa with 13% of the world's population, accounts for only 0.4% of content on the Web. Although in recent years, a number of organizations, establishments, academic institutions and individuals in a number of African countries have been involved in content development, there is still a need to increase Africa's presence on the Internet specifically in the area of the improving Africa content on a number of subjects matters. This initiative is designed to promote and facilitate national, sub-regional and regional projects and initiatives targeted at Africa content development.

6. **Project Costs**:

   a) African SCAN-ICT and E-Readiness Initiative: USD20 million for 4 years
   b) African Regional Telemedicine Initiative: USD30 million for 4 years
   c) Electronic Governance Initiative for Africa: USD15 million for 4 years
   d) African Electronic Commerce/Trade Initiative: USD25 million for 4 years
   e) African Regional Tele-education Initiative: USD50 million for 4 years
   f) Africa Content Development Promotion Initiative:USD40 million for 4 years

   Total Project Cost: USD 180 million for 4 years

7. **Project Rational and Justification:** The implementation of national, sub-regional and regional telemedicine, tele-education, e-commerce, e-trade, e-governance (including e-government); multi-purpose community tele-center initiatives among others are generally regarded as key community-based initiatives whose implementation can collectively aid the process of spreading the benefits of the exploitation and utilization of ICTs within the society and the economy and by so doing facilitate the process of bridging the digital gap

and accelerating the socio-economic development process of African countries.

The proposed continental umbrella initiatives will complement and supplement existing national, sub-regional and regional efforts in this area. The cooperating partnership and collaborative arrangement facilitated under each of the continental umbrella initiatives will ensure that, countries, or sub-regions who may otherwise not be able to implement their specific projects because of lack of resources may be able to benefit from the resources mobilized under each of the collective umbrella initiatives and also gain from the experiences and the best practices of other partners to enable them implement their projects. The umbrella continental initiative would provide a mechanism for reducing the duplication of efforts, which may otherwise arise without the coordination and exchange of experiences.

Each of the continental umbrella initiative will on the whole serve as a vehicle and project implementation facilitation and support framework for: (i) coordinating the implementation of specific components of the project at the national, sub-regional and regional levels (ii) mobilizing and pooling financial resources from various sources to facilitate the implementation of the project at various levels: national, sub-regional and regional (iii) exchange and the sharing of experiences and best practices between participating implementation institutions and agencies (iv) developing new projects and initiatives to achieve the goal of speeding up the process of spreading the utilization and exploitation of ICTs within the society and economy of African countries

8. **Possible Financiers/Indicative Financing Plan:** The possible financiers of various components of the continental initiative are: the RECs, ADB, UNECA, UNDP, EU, International Bilateral and Multilateral Donor Agencies.

9. **Project Implementation:** The institutional arrangement for facilitating the implementation of each of the constituent projects, will be based on the principle of: 'keeping local projects local' --- This will mean that, national constituent project will be implemented by national entities (e.g. the South Africa Government Agency SITA responsible for implementing the South Africa e-governance/government initiative), sub-regional projects will be implemented by the RECs (e.g SADC, ECOWAS, IGAD, etc) and regional projects implemented by existing regional institutions (e.g. ECA, ADB, AU) or regional project coordinating entities (e.g. the Africa Schoolnet Secretariat, the Africa Regional E-Commerce Consortia, the Electronic Distance Consortia for Africa etc). The cooperating and collaborative arrangement facilitated under the auspices of each of the specific continental umbrella initiatives will leave the ownership and the implementation of a specific project under the initiative with the responsible or designated participating entity.

10. **Sub-Projects under each of the Continental Initiatives:**

a) **The African SCAN-ICT and E-Readiness Initiative:** In most African countries there is a serious lack of basic information on key ICT and related economic and social indicators as well as on ICT related activities and on the impact of ICT policy decisions and plans. The availability of relevant information and better access to them will improve decision making at all levels, as well as aid the process of monitoring and evaluation of the impact of ICT activities, policies and plans and facilitate R&D work appropriate to the Africa region. This initiative is to facilitate and supplement on-going and planned national, sub-regional and regional projects aimed at the compilation of relevant data on key ICT and socio-economic indicators within the economy and society to serve as a basis for the development of national ICT policies and plans and for monitoring and evaluation of the impact of these policies and plans. Projects aimed at undertaking regular e-readiness assessment of African countries based on a number of key e-readiness indicators and assessment criteria also fall under this initiative. These e-readiness assessments are normally aimed at broadly assessing the degree of readiness of a country to gain the benefits offered by ICTs generally in terms of policy, the level of infrastructure development and roll-out as well as in terms of ICT exploitation and utilization initiatives designed to spread the benefits of the technologies within the society and economy. Some of the indicative candidate projects under this continental initiative include:

i) **The African Regional SCAN-ICT Project:** The SCAN-ICT project is designed to build support for the phased development of a comprehensive African capability to collect and manage key information needed to support the growing investment in ICTs as well as the transition of Africa to an information society. In addition, Scan-ICT project provides an

opportunity to build capacity in Africa to influence ICT investments, to extend their impact, and to encourage the development of Africa solutions, applications and content. The goal is to create a pan-African ICT network, connecting all levels of ICT related issues, which will be co-ordinated and supported by national SCAN-ICT nodes.

ii) **The DATAFRICA Project:** This project aims at the creation of an electronic database to store various statistics in the field of economics, trading, geography, environment, agriculture, health, and population. This project will complement the data gathered the SCAN-ICT Project. It is envisaged that in some countries the two project may be operationally merged as one single project aimed at the collection and dissemination of comprehensive sets of data

iii) **National E-Readiness, E-Assessment Projects and Initiatives:** Some African countries are currently undertaking e-readiness/e-assessment initiatives. It is envisaged that other African countries will be implementing some aspects of this initiative at the national level.

b) **The African Regional Telemedicine Initiative:** Telemedicine involves the deployment and utilization of ICTs to provide and facilitate the provision of health services at a distance and to support other activities related to medical education, training and research. The health delivery system in most African countries are experiencing huge demand for their limited resources and in most cases people in rural areas as well as urban area do not have access to a number of the services and the facilities at central and provincial hospitals. The implementation of telemedicine systems has the potential to improve access to a wide range of health delivery services to under-served communities in particular in both the urban and rural areas. Telemedicine systems could also be used to facilitate other health-related activities, such as medical education and training; community health education, promotion of public health education and awareness, medical research, and the administration of health services and facilities. Some of the indicative candidate projects under this continental initiative include:

i) **Sub-regional Telemedicine Projects:** Some sub-regional telemedicine projects are being put together by some of the RECs. An example is the SADCC Telemedicine Project designed to facilitate the provision of medical and health care services in member countries, especially in the rural area.

ii) **National Telemedicine Initiatives and Projects:** Some African countries are implementing national pilot telemedicine projects; these include: Senegal, South Africa, Uganda, Egypt, and Morocco. Some of these countries like Senegal and Uganda are collaborating with each other. A number of African countries also have plans to implement their national telemedicine projects.

c) **The Electronic Governance Initiative for Africa:** Electronic governance (e-governance) relates to the deployment, exploitation and utilization of ICTs to facilitate the process of good governance. E-governance incorporates aspects of e-government that mainly involves the use of ICTs to facilitate the delivery of government services and to improve the efficiency of government operations across the three-tiers of government (executive, legislative and judiciary) through the deployment and exploitation of ICTs. Facilitating the process of good governance in African counties is seen as critical for the NEPAD process and the role that ICTs can play in facilitating and sustaining the process of good governance in African countries provides the basis of the Electronic Governance Initiative for Africa. Some of the indicative candidate projects under this continental initiative include:

i) **National E-Governance Initiatives:** Some African countries are implementing e-governance initiatives mainly in the area of providing e-government services. Countries like South Africa, Senegal, and Rwanda among others have in place policies and plans targeted at facilitating e-governance and rolling-out e-government services. Some countries like Uganda have government-on-line pilot programmes that could form a basis for the development of a national e-governance initiative. It is anticipated that each African country will eventually be implementing some form of e-governance systems a process that could be facilitated and supported under this continental umbrella initiative.

d) **The African Electronic Commerce and Trade Initiative:** Electronic commerce and trade involves the use of multimedia presentation and delivery platforms ---- like the Internet to facilitate the process of online trading and transactions. Over time, the sale and transaction of goods and services electronically is likely to

be the largest and most visible driver of the new global economy and a major force driving economic growth world-wide. Apart from its use to facilitate trade in in-tangible goods and services, e-commerce is increasingly being use to trade in tangible goods.

The implementation of e-commerce and e-trade system by African countries can drastically reduce transaction costs, make distances between buyers and sellers irrelevant, and provide African businesses greater access to global markets. This initiative is aimed at enhancing the participation of African countries in the global e-commerce and e-trade system through facilitating development and implementation of national, sub-regional and regional e-commerce and e-trade development frameworks targeted at: putting in place in each country the required regulatory laws, provision and the enactment of relevant cyber-laws; ensuring effective consumer protection; facilitating access to on-line payment systems; expanding Internet availability and use of electronic commerce in each country; implementing national and sub-regional pilot e-commerce and trade facilitating systems and projects targeting SMEs and the public sector; studying the impact of the development and implementation of e-commerce on their economies; facilitating SMEs and entrepreneurial use of e-commerce; and increasing government participation in e-commerce, especially in the area of online tender and procurement of goods and services. Below are some of the indicative candidate projects under this continental initiative.

i) **The E-Customs Africa Project:** The key objective of this project is to interconnect Custom agencies in Africa to facilitate customs operations electronically through the tracking and control of goods travelling between African countries. The project aim at developing and implementing a system to facilitate e-trade (as well as conventional trade) in African countries by facilitating the rapid processing of customs documents to reduce transaction cost, increase operations transparency, control fraud and generate detailed trade statistics. It is envisaged that this project will complement and supplement the ASYCUDA system now operational in a number of African countries, which is being used as a computerised customs management system which covers most foreign trade procedures and handles manifests and custom declaration, accounting procedures, transit and suspense procedure.

ii) **National E-commerce and E-trade Facilitation Projects:** Some African countries are putting in place and implementing (in most cases on a pilot basis) e-commerce development frameworks. Countries like South Africa, Egypt, and Ghana among others, have put in place some elements of cyber laws and legislations as part of their national e-commerce development framework which could impact on the development of e-commerce in their countries.

e) **The African Regional Tele-education Initiative:** Tele-education, which involves the used of ICTs to deliver educational and learning materials, is making it possible for educational and training institutions and schools to extend their services to greater number of students locally and internationally. The emerging educational delivery technologies underlying tele-education is providing African countries the opportunity to complement and supplement the limited educational delivery resources in schools, colleges and universities. Electronic distance education (EDE) as an aspect of tele-education is rapidly becoming a worldwide growth area in higher education. Most of African countries are experiencing on increasing demand for limited higher education places and less resources to meet these demands. Electronic distance education is providing African educational and training institutions with an opportunity to educate a greater number of people to support and sustain social, economic and industrial development. Another aspect of tele-education, involves the implementation of schoolnets as part of 'computers in schools' initiatives. Schoolnets facilitates access to the Internet and serve as an ICT-mediated application development and delivery environment for the development and delivery of educational and learning programs to schools at the pre-university level. The proposed African Regional Tele-education Initiative would include the following indicative sub-projects:

i) **The SchoolNet Africa Project:** Schoolnet Africa is an independent non-governmental organization promoting education through the use of ICTs throughout Africa. The mission of the Schoolnet Africa project is to support national schoolnets throughout Africa by mobilizing resources, building effective partnership and knowledge in promoting education though the use of ICTs in African schools.

ii) **National SchoolNet and 'ICTs in Education' Initiatives**: A number of African countries are implementing national Schoolnet initiatives and 'computers in schools' programme most of them on a pilot basis. Countries like Ghana, Uganda, Cameroon, Egypt, South and others are at different stages of developing and implementing their national programmes in this area. The sustainability of these national programmes would be enhanced under the Tele-education umbrella initiative

iii) **The Africa Virtual University Project**: The African Virtual University (AVU) a project originally conceived by the World Bank in the late 1990's is now operational on campuses of a number of African universities and colleges. Students of participating institutions electronically avail of courses and programs on a number of subject areas through the AVU system. The project is now into the phase where the development of some course materials is carried out by the participating African institutions. The proposed continental umbrella Tele-education would support and facilitate the wider implementation of this project.

iv) **National Electronic Distance Education (EDE) and Virtual/Open Learning Initiatives.** A number of African countries are implementing national EDE initiatives targeted at Higher Institutions of Learning (Universities, Polytechnics and Colleges). A number of these countries are at various level of establishing their national open learning/virtual university systems to supplement and complement their traditional campus-based higher learning institutions. These national initiatives will be supported and facilitated under the umbrella Tele-education initiative.

f) **The Africa Content Development Promotion Initiative:** The development and promotion of Africa's content on the Internet is often cited as essential to improve Africa's presence on the Web and facilitate the process of making information about Africa available to a global audience. Content development efforts will need to be directed at addressing the issue of language, capturing of indigenous knowledge, improving African's presence on the Web, sharing of African's scientific and research output and development of content-specific applications of relevance to key sector such as health, education, agriculture and culture. Indicative candidate projects under this continental initiative include:

i) **National Content Development Projects and Initiatives:** There are a number of ongoing efforts and initiatives in African countries aimed at content development on the Web. It is envisaged that a number of these initiatives and new ones will be facilitated and supported as part of this continental umbrella initiative.

11. **Issues and Proposed Action:** Issues relating to the institutional arrangements and mechanisms for facilitating the implementation of each of the constituent projects will need to be addressed. Actions will need to be taken on identifying the various participating national sub-regional and regional entities under each of the continental umbrella initiatives as well as defining the modalities, mechanisms the nature of collaboration and co-operation between these entities.

12. **Proposed Involvement of NEPAD:** NEPAD would (i) promote and facilitate the implementation of the initiative and where necessary initiate and facilitate the institution of specific regional coordination institutional arrangements for some of the continental umbrella initiatives (ii) facilitate and initiate each of the proposed continental umbrella initiatives (iii) promote and seek support for the implementation of the project at major meetings of donors, bilateral and multilateral agencies as well as at meetings of major economic blocs like the G8 and the EU and (iv) facilitate the mobilization the necessary financial resources for implementing of the project.