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**DEVELOPMENT OF A BROADBAND INFRASTRUCTURE AND ACHIEVEMENT
OF REGIONAL INTERCONNECTIVITY**

A. Objectives:

1. To provide African countries with a broadband infrastructure to be used for sub-regional and continental interconnection.
2. To digitalize the existing switching and transmission infrastructure in countries.
3. To achieve interconnection of Internet nodes among countries.
4. To implement regional roaming among mobile operators.
5. To provide populations with access and better quality ICT service and improve performance indicators.
6. To contribute in bridging the digital divide.
7. To reduce extra continental transit and reduce fees related to the used bandwidths charged to the region

B. Expected Results:

1. A Pan-African Telecommunication Network is operational.
2. National telecommunication equipments and transmission ways are upgraded by using new technologies including Wireless Access loop for rural areas.
3. Countries are interconnected through high capacity links.
4. Transit traffic carried outside the continent is reduced to less than 5 % of intra-regional traffic.
5. Resources are optimized through the acquisition of common bandwidth and bulk purchase of equipments.
6. Service costs are significantly reduced and harmonized within each sub-regional economic space.
7. Increased participation in the building of an all-inclusive information society.

C. Participants:

- ITU Member States / Sector Members: African countries.
- International/Regional Organizations: ITU, ATU, AU, NEPAD e-Africa Commission.
- Potential Donors: AfDB, World Bank, Economic Commission, developed countries.
- Other Stakeholders: Regional Economic Communities (ECOWAS, COMESA, CEN-SAD, SADC, ECCAS, UMA, IGAD, WAEMU, CEMAC), AFRISPA, Telecom Operators

D. Linkages with ITU-D Action Plan and WSIS Action Plan

Corresponding BDT Programmes	Corresponding WSIS Activity Directions
<ul style="list-style-type: none"> ❑ Technologies and telecommunication [and security] network development ❑ Cyber-strategies, cyber-services/applications ❑ Economic and financial issues, including costs and tariffs ❑ Statistics and information on ICT indicators. 	C2 – ICT Infrastructure C3 – Access to information and knowledge C7 – ICT Applications C11 – International Cooperation

E. Implementation Plan

Phase 1: Preparation – April - December 2006

Tasks
1.1. Compiling and collecting available data (feasibility studies, call for tenders, national plans or national network development master plans, etc), including respective projects for the broadband streamlined infrastructure suggested for Central Africa, West Africa, Northern Africa, Eastern Africa and Southern Africa.
1.2. Performing an analysis of existing relationships and carriers used for roaming between countries, and proposing an adequate common technical platform.
1.3. Assessing needs for technical support to be provided to existing projects, to projects being developed or to projects being launched and which are likely to improve or supplement the African communication and connectivity infrastructure, including the various NEPAD ICT infrastructure initiatives: EASSy project, RASCOM, COMTEL project, SRII project, etc.

Phase 2: Implementation – January 2007 - December 2007

Tasks
2.1. Conducting additional technical and economic feasibility studies for LDCs and landlocked countries by identifying the appropriate carrier to be used on each backbone (fibre optics, micro wave beam system, satellite, etc.).
2.2. Achieving a final configuration of the broadband network, taking into account the respective data collected from sub-regional projects and NEPAD initiatives.
2.3. Assisting in the tender calling process and in the validation of the respective national segments based on each project's planning.
2.4. Assessing existing Internet node connections between countries and proposing appropriate solutions to the assessed traffic for each sub-region and interconnecting Internet Exchange Points.
2.5. Preparing terms of reference for the implementation of the interconnection of Internet nodes by adopting a mutual approach, and calling for bids (negotiations could be opened with suppliers based on the

economic peculiarities of each sub-region: duty exemption, etc.).
2.6. Assisting countries, where appropriate, during the various engineering phases, receipt of equipments, installations, including for sub-regional projects identified and requiring any assistance.
2.7. Performing a benchmarking of ICT service costs in countries and conducting a study in order to make recommendations on cost harmonization and reduction.
2.8. Signing an MoU between the various operators for a mutual recognition of roaming users and for providing them with basic services (voice and data) at equitable costs.

Phase 3: Operation – January 2008 - December 2009

Tasks
3.1. Gradual implementation of networks and regional connectivity.
3.2. Authenticating functionalities and establishing appropriate maintenance structures.
3.3. Preparing extension diagrams as well as technological updating processes, while striving to maintain the same technical standards and level of development in each sub-region.
3.4. Encouraging the establishment of ICT structures by availing technical facilities for ICT activities (schools, universities, cyber cafés, information and documentation centres), and involving local governments in the implementation of electronic means of managing a city, especially for rural or remote populations and for destitute people.

Phase 4: Evaluation – July 2009 - December 2009

Tasks
4.1. Analyzing and assessing results against targeted objectives.
4.2. Performing an audit of networks and control of the various means established to ensure network sustainability by providing for financial arrangements to ensure technological monitoring responding to users' needs and service quality control.
4.3. Assessing impact on users by conducting satisfaction surveys based on service costs, purchasing power and impact on trade and the economy as a whole.
4.4. Assessing the achieved economies of scale and ensuring sustained investments in the sector to gradually increase access to high output services in rural areas.

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ACRONYMS

ICT	Information and Telecommunication Technology
AU	African Union
ITU	International Telecommunication Union
ATU	African Telecommunication Union
UNECA	United Nations Economic Commission for Africa
URTNA	Union National Radio and Television Organizations of Africa
NEPAD	New Partnership for Africa's Development
ECOWAS	Economic Community of West African States
COMESA	Common Market of Eastern and Southern Africa
SADC	Southern Africa Development Community
CEN-SAD	Economic Community of Sahel and Sahara States
ECCAS	Economic Community of Central African States
UMA	Union of Arab Maghreb States
IGAD	Intergovernmental Agency for Development
WAEMU	West African Economic and Monetary Union
CEMAC	Central African Economic and Monetary Community
ITU-D	ITU Development Sector
WSIS	World Summit on the Information Society
EC	European Commission
AfDB	African Development Bank

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ANNEX 1 (REGIONAL BROADBAND INITIATIVE)

NEPAD ICT INFRASTRUCTURE PROGRAMME

A. Objectives:

Region of interest: Africa

Main objective: To integrate by 2010 the African continent by harmonizing ICT Infrastructure initiatives across the continent

Specific objectives include:

1. To build the **Eastern Africa Submarine cable System (EASSy)** linking Mtunzini (South Africa) to Port Sudan, with landing points in countries and islands along the East coast.
2. To connect all land-locked countries to the existing SAT-3 / WASC and the planned EASSy cable systems.
3. To establish an integrated, continent-wide broadband ICT network.
4. To provide the technical connectivity infrastructure for the Nepad e-school project

B. Expected Results:

- Establishment of the Eastern Africa Submarine cable System (EASSy),
- Establishment of Broadband ICT Networks for Eastern & Southern Africa, and for Central, West and Northern Africa.
- Establishment of a global interconnected African Education Network (e-school project)
- Connecting all African countries to their neighbours by broadband optical fibre cable, in a manner that each land-locked country is connected to at least two submarine cable landing stations.
- **Benefits** of the Broadband Connectivity
 - ❖ High speed, high bandwidth connectivity to Africa
 - ❖ Enable high bandwidth products and services
 - ❖ Improve high capacity optic connectivity within Africa and the rest of the world
 - ❖ Reduce unit costs for international connectivity with lower end-user charges
 - ❖ Reduce payments to foreign satellite telecommunications providers
 - ❖ Contribute towards the socio-economic development of the region
 - ❖ Meet growing telecommunication needs of high bandwidth users such as Internet Service Providers and mobile operators

C. Participants:

1. .Participants: Telecom operators, Botswana Telecom; Onatel Burundi; Telecel Burundi; Djibouti Telecom; Ethiopia Telecom; Kenya Data Network (KDN); Telkom Kenya Limited (TKL); Lesotho Telecom Authority; Telecom Malagasy; Malawi Telecom; Mauritius Telecom; France Telecom; Telecom de Mozambique (TDM); Dalkom; Sentech; SNO- South Africa; Telkom South Africa (TSA); Sudatel; Kanartel; TTCL; Zanzibar Telecom (Zantel); MTN Uganda; Uganda Telecom; Zamtel; Teleone; BT (UK); Saudi Telecom Company (STC); Teleglobe Canada; SatCom - Tanzani
2. National Governments, Regional Economic communities and Development Partners
3. NEPAD

D. Links with ITU-D Action Plan and WSIS Plan of Action

Corresponding BDT programs	Corresponding WSIS activities directions
<p>X Technologies and Telecommunication [Security and] Network Development; Xe-Strategies, e-Services/Applications; XEconomics & Financing, including cost and tariffs</p> <p>XICT Statistics, Indicators and Information</p>	<p>Paragraph 43 of the WSIS Declaration of Principles C2-Information and communication infrastructure C3-access to information and knowledge C7-ICT applications. C11-international cooperation</p>

E. Implementation Plan

Phase 1: Eastern Africa Submarine cable System (EASSy)

Tasks
Task 1.1: Financial closure on commitments - 2006
Task 1.2: Construction contract signed -2006
Task 1.3: Network cable commissioned -2007

Phase 2: NEPAD Broadband ICT Network for Eastern and Southern Africa

Tasks
Task 2.1: Establish project team
Task 2.2: Consultations with policy makers and regulators
Task 2.3: Creation of Special Purpose vehicle SPV(s) to own and operate the network
Task 2.4: SPV to raise funds;
Task 2.5: Construction commences
Task 2.6: Commissioning of the Network

Phase 3: NEPAD ICT Broadband Network for West, Central and North Africa

Tasks
Task 3.1: Establish Project Team at the NEPAD e-Africa Commission
Task 3.2: Consultations with Policymakers and Regulators to facilitate agreement on fundamental principles of open access
Task 3.3. Creation of SPV(s) to own and operate the network
Task 3.4 SPV to raise funds
Task 3.5 Construction commences
Task 3.6 Commissioning of the Network

Phase 4: NEPAD e-Schools Satellite Network Project *(This project is at the core of enabling the Internet-based connectivity for the NEPAD e-Schools Initiative at continental level)*

Tasks
Task 4.1: Definition of the space and ground segments
Task 4.2: Full system specification including operations centre
Task 4.3: Project implementation and Operation Centre establishment
Task 4.4: Lease Capacity
Task 4.5: Commissioning of the network

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WOMEN-LED MCT NETWORK FOR AFRICAN WOMEN

A. Objectives:

Since 2003, five women-led MCTS have been implemented in Tanzania, Guinea Bissau and Zambia involving partnerships between the ITU-D and the respective Governments in the three countries. The three countries are only a small fraction of the thirteen African countries who had requested the ITU in 2003 to assist them in implementing women-led MCTs. The number of countries so far covered has been limited due to limited funding resources and the intention is to continue this project in the remaining countries namely Benin, Central African Republic, Democratic Republic of Congo, Ethiopia, the Gambia, Kenya, Malawi, Republic of Congo and Rwanda. Based on the experience from these projects, roll out of the remaining MCTs would be done more efficiently in order to provide Public Access Centers to the rural communities with a view to facilitating easy and affordable access the ICT and internet services. The project foresees establishment of a network at least 100MCTs in participating countries, owned and managed by women, providing local communities with various ICT services including basic communication; training and capacity building; business support; desktop publishing and technical services. The main objectives of this project are:

- To narrow the digital gap between rural and urban areas by creating cost effective ICT technology solutions to improve the social and economic life and educational resources between isolated rural communities and urban centers.
- To provide capacity building and technical know-how to women and the rural communities through provision of computer related equipment, communication and network equipments, power supply and office furniture to selected MCTs
- To offer the technical services of local community.
- To demonstrate the viability of such facilities to attractive local investors who could participate in joint-ventures with the respective local governments to set up Public Access Centers and roll out similar facilities in other parts of countries.
- To implement the WSIS Plan of Action as reaffirmed by the Tunis Commitment and Tunis Agenda for the Information Society.

B. Expected Results:

- (1) This project will enhance the development of sectors like education, health, agriculture and the informal sector of business traditionally operated by African women.
- (2) The project will enable women to venture into non-traditional business such as data entry and hence create employment and contribute positively towards poverty alleviation and the Millennium Development Goals and the WSIS Plan of Action.
- (3) The project will be used as a women MCTs incubator. An MCT fund for African Women could be created to provide expertise and funds to build other MCTs in Africa. The MCT fund should be sustainable and independent, and could team up with other existing initiatives and support groups such as IDRC's Telecentre Support Network in order to share experiences.

C. Participants:

Sub-Sahara African countries
ITU (International Telecommunication Union)
Possibilities for more partners to be co-opted

D. Linkages with ITU-D Action Plan and WSIS Plan of Action

Corresponding BDT Programs	Corresponding WSIS Activity Directions
<ul style="list-style-type: none"> ❑ Technologies and Telecommunication [Security and] Network Development; ❑ e-Strategies, e-Services/Applications; ❑ Economics & Financing, including cost and tariffs ❑ Capacity building; ❑ Special Programme for Least Developed Countries; ❑ ICT Statistics, Indicators and Information ❑ Partnerships & Promotion ❑ Gender and Youth Initiatives 	<ul style="list-style-type: none"> ❑ WSIS Plan of Action, Section A 3 (b); ❑ WSIS Plan of Action, Section B 6 (a), (d), (f),(h); ❑ WSIS Plan of Action, Section C sub-section c1 (b),(c),(d); ❑ WSIS Plan of Action, Section C sub-section c2 (b) ❑ WSIS Plan of Action, Section c sub-section c3 (b), (c), (d); ❑ WSIS Plan of Action, Section C sub-section c4 (g), (h) ❑ WSIS Plan of Action, Section C subsection c6, no. 13 (a);

E. Implementation Plan

The implementation of a regional initiative will be carried out by phases as suggested below. These phases should include, as precisely as possible, all mandatory tasks for the achievement of the targeted objectives. If an initiative has several objectives, an implementation plan has to be considered for each objective with a view to developing a project or sub-project to which the four different phases will be applied. The timing of phases of different sub-projects may differ.

Phase 1: Preparatory phase – From (2007) to (2010)

Tasks
Task 1.1: Fund raising
Task 1.2: Signing of Project Agreements
Task 1.3: Formation of National Steering Committees

Phase 2: Implementation – From (2007) to (2010)

Tasks
Task 2.1: Renovation/Construction of project accommodations
Task 2.2: Procurement & shipment of MCT equipment
Task 2.3: Recruitment & training of MCT Staff

Phase 3: Exploitation phase – From (2007) to (2010)

Tasks
Task 3.1: Installation, testing & commissioning of equipment
Task 3.2: Marketing & user training
Task 3.3: Training of local maintenance personnel

Phase 4: Evaluation phase - From (2009) to (2010)

Tasks
Task 4.1: Annual review of project
Task 4.2: Impact assessment
Task 4.3: Final Reporting and Closure of project

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ANNEX 3 (REGIONAL BROADBAND INITIATIVE)

AFRICAN UNIVERSITY NETWORK - AFUNET

A. Objectives:

The mission of AFUNET Association is to deliver and support network infrastructure and services to the education and research community of Africa in order to provide the necessary conditions for the improvement, development and sustainable operation of the national and trans-national educational and research programmes. The AFUNET project is based on principles such as the delivery of cost-effective network connectivity and services to meet the needs of the academic users and creates conducive environment for inter-African and global cooperation and collaboration.

AFUNET objectives are to:

- Develop, run and maintain network infrastructure and the services both intra and inter-continental
- Promote and assist in the technical and organizational collaboration between national research and education networks
- Pursue the common interests of the Association and its members in relation to other organizations like CCIRN, TERENA, CEENet, and Internet2
- The formation of working parties to undertake technical activities which comply with the objectives of the Association
- Support and organize conferences, workshops, and courses, as well as publication and distribution of appropriate documentation, brochures, and magazines whenever possible through the usage of electronic media
- Preparation and submission of project applications to international organizations for promotion of the development of research networks within the sphere of the Association and its members.
- Enhancing the development and distribution of joint educational programmes.
- To implement the WSIS Plan of Action as reaffirmed by the Tunis Commitment and Tunis Agenda for the Information Society.

B. Expected Results:

- a) Establishment of National Research and Education Networks at country levels
- b) Detailed plans for networking at the local , national, regional and pan-African levels
- c) Establishment of regional and /or pan-African governance structure to coordinate and later operate the network.
- d) Efficient and cost effective connectivity for research and education institutions in Africa

C. Participants:

- ITU Member States in Africa through the African University Association (AAU)
- ITU, the United Nations University, the United Nations University Institute for Natural Resources in Africa (UNI/INRA), United Nations Institute for Technology (UNU-INTECH) and the United Nations University/Global Virtual University (UNU/GVU). Partner Institutions from Africa will participate in all phases of the project.
- Donor organizations (NORAD, SIDA, IDRC and other organizations working to improve connectivity to African Institutions).

D. Links with ITU-D Action Plan and WSIS Plan of Action

Corresponding BDT programs	Corresponding WSIS Activity Directions
<ul style="list-style-type: none">❑ Technologies and Telecommunication [Security and] Network Development;❑ e-Strategies, e-Services/Applications;❑ Capacity building;❑ Partnerships & Promotion	<ul style="list-style-type: none">❑ WSIS Plan of Action, Section B 6 (b), (c) (g), (i);❑ WSIS Plan of Action, Section C sub-section c1);❑ WSIS Plan of Action, Section C sub-section c2 9 (c);❑ WSIS Plan of Action, Section C sub-section c3 10 (c);❑ WSIS Plan of Action, Section C sub-section c4 11 (a-f & i-p);❑ WSIS Plan of Action, Section C sub-section c5 12 (c-j);❑ WSIS Plan of Action, Section C sub-section c7 22 (a-e);

E. Implementation Plan

As of today, a feasibility study funded by the Norwegian Agency for Development Cooperation (NORAD) is in progress. A draft report has been circulated to the AAU and universities covered under the pilot project for comments. A joint UNU/ITU/CERN workshop on African Research & Education Networking was held in September 25 to exchange views with representatives of African universities to better understand their requirements as inputs to the feasibility study. Exchange of views continued at the IDRC sponsored Workshop held in Tunis during the WSIS World Summit on Information Technology but a detailed implementation plan is yet to be produced pending the outcome of the feasibility study.

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