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Harnessing ICT, Science and Technology for Development (ISTD) in Africa:

ECA ICT Activities

Progress Report

2007-20008

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Acronyms

AAU	Addis Ababa University
AAW	APC-Africa-Women
ACSIS	African Civil Society Network in the Information Society
ACS	African Centre for Statistics
AFREF	African Geodetic Reference Frame
AHI	Africa Health Infoway
AISI	African Information Society Initiative
AMCOST	African Union Ministerial Council on S&T
ANSTI	African Network of Scientific and Technological Institutions
APC	Association for Progressive Communications
ARICEA	Association of Regulators of Information and Communication for Eastern and Southern Africa
ARN	Academia Research Network
ASYCUDA	Automated System for Customs Data
ATAC	African Technical Advisory Committee
AUC	African Union Commission
AWICH	African Water Resources Clearinghouse
AYIN	African Youth ICT4D Network
BPO	Business Process Outsourcing
CEMAC	Central African Monetary and Economic Community
CEPRC	Canadian e-Policy Resource Centre
CODI	Committee on Development Information,
CODIST	Committee on Development Information, Science and Technology
COMESA	Common Market for Eastern and Southern Africa
CONGO	Conference of NGOs in Consultative Relationship with the United Nations
CPA	Consolidated Plan of Action
CRE-CO	Constitution and Reform Education Consortium
EAC	East African Community
ECA	Economic Commission for Africa/UN
ECCAS	Economic Community of Central African States
ECLAC	Economic Commission for Latin America and the Caribbean
ECOWAS	Economic Community of West African States
EDI	Electronic Data Interchange
ENRAEMED	Ethiopian Natural Resources Metadata base
ePol-Net	e-Policy Resource Network
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FEMNET	African Women's Development and Communication Network
GAID	Global Alliance for ICT and Development
GIS	Geo-information Systems
GKM	Global Knowledge Manager
GKP	Global Knowledge Partnership
GNSS	Global Navigation Satellite Systems
GPS	Global Positioning System
GTZ	(German Technical Assistance)

ICT	Information and communication technology
ICT4D	ICT for Development
IDRC	International Development Research Centre
IGF	International Governance Forum
ISO	International Organization for Standardization
IUCEA	Inter-University Council for East Africa
ILO	International Labour Organization/UN
IPR	International Property Rights
ISTD	ICTs and Science and Technology/ECA
ITCA	Information Technology Centre for Africa
ITU	International Telecommunication Union
IXP	International Exchange Points
KLIS	Knowledge, Libraries and Information Services for Development/ CODIST.
MAFA	Mapping Africa for Africa programme
MDG	Millennium Development Goal
MTSP	Medium-term Strategic Plan
NORAD	Norwegian Agency for Development Cooperation
NAFGIM	National Framework for Geographic Information Management
NEPAD	New Partnership for Africa's Development
NFP	NGO Policy Forum
NICI	National Information and Communication Infrastructure (Plan)
NSO	National Statistical Office
OECD	Organization for Economic Cooperation and Development
OSS	Open Source Software
PDCT-AC	Plan Directeur Consensuel de Transport en Afrique Centrale (Master Plan for Transport in Central Africa)
PICTA	Partnership for ICT in Africa
PPP	Public Private Partnership
R&D	Research and Development
SADC	Southern African Development Community
SIMS	Students' Information Management
S&T	Science and Technology
SCAN-ICT	IDRC/ECA/EU/NORAD Project
SDC	Swiss Development Cooperation
SMART	Sustainable Modernization of Agriculture and Rural Transformation
SRO/CA	ECA Subregional Office for Central Africa
SRO/NA	ECA Subregional Office for Central Africa
StatCOM-Africa	Committee on Statistics
STI	Science, Technology and Innovation
TIDB	Transport Infrastructure Database
TIGA	Technology in Government in Africa
UNDAF	United Nations Development Assistance Framework
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGIWG	United Nations Geographic Information Working Group

UNEP	United nations Development Programme to pilot an innovative spatial data
UNGIS	United Nations Group on the Information Society
UNSDI	United Nations Spatial Data Infrastructure
WHO	World Health Organization/UN
WOUGNET	Women of Uganda Network
WSIS	World Summit on the Information Society

Introduction

As a result of the re-structuring of ECA in 2006, a new division called ICTs, Science and Technology Division (ISTD) was created. ECA's subprogramme component on Harnessing Information for Development and ICTs, Science and Technology for Development supports African countries to participate fully in the rapidly evolving, people-centred, inclusive, development-oriented Information Society. It is acknowledged that harnessing Science and Technology (S&T) is necessary for achieving sustainable development.

To this end, ECA's work under this subprogramme focused on three broad interrelated areas as follows:

- ***ICT for Development,*** aimed at policies, plans and applications integrated into country development strategies, with a focus on the information and knowledge economy and on Information and Communication Technologies (ICTs) in the socio-economic sectors. This also includes establishment of virtual libraries and specialized information centres, providing access to knowledge for countries to meet the Millennium Development Goals.

- ***Geo-information for Development,*** which allows decisions and plans to be made based on various types of information about the location of resources/facilities required for decision-support in the areas of natural resources, environmental protection and management, food security, land reform, transport, health and education, etc.

- ***Science and Technology for Development,*** will undertake research and policy analyses of Science, Technology and Innovation (STI) and development trends, so as to inform policymakers and planners, to develop and implement tools for the integration of STI parameters in development plans and strategies, and for the implementation, monitoring and evaluation of these parameters in development policies and activities.

1. Development-oriented policies for an inclusive information society, including access, infrastructure and an enabling environment

Activities undertaken in this area hinge on the African Information Society Initiative (AISI) through which the formulation and development of national e-strategies on the continent, known as National Information and Communication Infrastructure (NICI) Plans are based. The development of NICI policies and plans is one of the most important programmes supported by AISI. AISI provides the roadmap to guide African countries in addressing the challenges of the emerging globalization era and the information age by developing and implementing NICI policies and plans within the wider national socio-economic development objectives, strategies and aspirations.

NICI provides the framework within which ICTs are mainstreamed into the national planning process in order to facilitate the achievement of national and sectoral development priorities and objectives. It is an ongoing process of planning, implementation and regular evaluation of programmes and projects developed according to the needs and priorities of each country.

Policies and plans under this framework can be defined as an integrated set of decisions, guidelines, laws, regulations and other mechanisms which direct and shape the production, acquisition and use of ICTs. The process is therefore based on national needs and development priorities as determined by all the relevant stakeholders and with the Governments playing a central role in the creation of an enabling policy and legislative framework to promote an integrated NICI plan. In addition, an enabling environment addresses the challenge of the massive investments required for ICT deployment in Africa. NICI therefore represents a long-term strategy to develop infrastructure, human capacity, content and applications as an integral part of overall national development.

A number of African countries have successfully embarked on NICI processes that articulate long-term policy, infrastructure, content and application strategies as an integral part of their overall national development goals. In some cases, the development and implementation of corresponding action plans have been undertaken.

Currently, ECA is supporting the following countries to assist them to develop NICI implementation plans or sectoral e-strategies: Benin, Burkina Faso, Democratic Republic of Congo, Gambia, Mali, Nigeria, Sierra Leone, and Swaziland. Additional requests for support in developing NICI implementation plans have been received from Comoros, Gabon, Guinea, Kenya, Sudan and Tanzania.

The study on impact of ICTs on Employment and Poverty Alleviation in Africa

In cooperation with the Government of Finland, International Telecommunication Union (ITU) and International Labour Organization (ILO), ECA undertook a study in eight countries on opportunities and challenges of ICTs in employment and poverty alleviation in Africa. The study examined efforts made by member States on job creation taking advantage of the potential of ICT in developing an information economy. The study recommended that African countries position themselves, on outsourcing especially, taking advantage of low wages, multi-lingual environments, favourable time zones, large pools of ICT graduates, diaspora awareness and improved ICT infrastructure.

However, the study also identified several bottlenecks which prevent the continent from being competitive, such as high licensing fees, lack of national standards for Business Process Outsourcing (BPO), high infrastructure costs, difficulties in accessing finance for start-up/expansion of BPO operations, political instability, bureaucracy, etc. ECA and ITU completed the final report of the study in April 2008 for printing.

The ICTs, Trade and Economic Growth (e-trade) Initiative

The e-Trade Project being implemented by ECA in cooperation with Industry Canada's Canadian e-Policy Resource Centre (CEPRC) is one component of the project entitled *Enhancing the Enabling Environment in Africa: Using information and communications technologies as a catalyst for increased trade and economic growth.* The e-Trade project has, as its aim, the creation of policy environments favourable to the conduct of electronic business (e-business) and trade within and amongst African countries and between Africa and the rest of the world.

Following the kick-off Forum on ICTs, Trade and Economic Growth in Addis Ababa, Ethiopia in March 2006, six pilot countries were selected to undertake national studies on the current state of e-Trade, namely Ethiopia, Egypt, Ghana, Kenya, Senegal and South Africa, to culminate with hosting of stakeholder roundtables in the six countries to discuss the national studies and to provide feedback to the consultants, and the final synthesis and development of a roadmap.

The wrap up workshop on e-trade was held in Addis Ababa from 22-23 January 2008.

2. Knowledge networks through ICT access points for disadvantaged communities

The United Nations Secretariat has involved its five regional commissions including ECA in knowledge networking Led by the Economic and Social Commission for Western Asia (ESCWA). ESCWA initiated this project in early 2006 with the aim of empowering poor and disadvantaged communities through the transformation of selected ICT access points into knowledge hubs of global knowledge networks.

The initiative is in line with the realization that community access points can be the most effective tools in realization of many socio-economic development goals and as such, need to be re-designed to be able to disseminate knowledge in key areas of sustainable development i.e. employment, education, gender and health. The transformation into service and community development hubs as well as centres for exchanging business information and providing sustainable sources of revenue will extend the access centre model beyond the original model that only focuses on access to ICTs.

ECA undertook country assessments in the East African Community (EAC) comprising Kenya, Uganda and Tanzania between November 2006 and February 2007. The exercise was aimed at reviewing the state of the art and degree of evolution of telecentres towards knowledge hubs, including available ICT applications and services. Based on this assessment, a regional stakeholders workshop on knowledge network strategies, mechanisms and tools was held in Kampala, Uganda from 3 to 4 December 2007. Twenty participants, comprising managers of community access points, telecentre network leaders, project coordinators and managers of ICT initiatives from seven countries attended. The participants were from Ethiopia, Kenya, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe.

At this stakeholders workshop, it was agreed that the pilot phase would focus on four countries – Kenya, Rwanda, Tanzania and Uganda with the possibility of including Burundi and Ethiopia at a later stage. Zimbabwe and Zambia would be included as members of the secretariat in order to facilitate experience and best practice sharing. To this end, one focal point per country was appointed. Based on the outcomes of this workshop, ECA prepared a brief knowledge network strategy.

The knowledge nodes identified by the workshop would include but not be limited to the following sites:

- Uganda – Nakeseke, Kubere and Nabweru
- Tanzania – Sengerema, Kibwenge and FADECO
- Kenya – Ugunja, SIDAREC
- Rwanda – Nyamata, Kibuye (South Rwanda)
- Ethiopia – Axum, Wolisso, Debre Berhan
- Burundi – to be identified

UNESCWA has recruited a Global Knowledge Manager (GKM) to coordinate and lead the implementation of the knowledge networks over the 15-month period of the project beginning April 2008. Each regional commission will have a Regional Knowledge Manager (RKM) to coordinate the activities of the project with the GKM. To this effect, ECA will also finalize recruitment of the RKM for the ECA region and launch the knowledge network shortly, in the next quarter.

African Health Infoway

ECA and WHO have commissioned a joint regional needs assessment and scoping study as part of activities under the Africa Health Infoway (AHI), a district-based public health information network and geospatial health system. AHI as a system will support the collection of subnational health data and statistics for analysis, dissemination and use to support decision-making in health, and to strengthen the capacity of African countries to use such data in decision-making.

This information will include:

- Data for epidemiological research;
- Indicators for monitoring and evaluation;
- Financial and cost reporting for clinic management;
- Drug, equipment, and supply stock reporting for supply management.

AHI, as currently conceptualized, has three main development objectives:

(a) To strengthen health systems and improve health in countries by bringing ICTs to bear positively on health challenges and facilitating coordination of existing work undertaken by WHO and other development partners at country level;

(b) To support WHO strategic objectives in knowledge management; and

(c) To support the newly developed WHO Strategic Objectives within the Medium-term Strategic Plan (MTSP), which covers the time frame 2008-2013. AHI has a number of strategic components, namely, infostructure and connectivity; district health information systems, and knowledge translation into policy and action.

The studies commissioned by ECA and WHO will review and report on the existing state of health information systems, ICTs, geomatics, surveying and mapping in eighteen African countries, with special emphasis on the public health sector. The countries are: Cameroon, Chad, Egypt, Ethiopia, Gambia, Ghana, Kenya, Mali, Morocco, Mozambique, Niger, Rwanda, Tanzania, Uganda, Senegal, Sierra Leone, South Africa and Swaziland.

E-Employment Project in Central Africa

To benefit from the ICT opportunities for tackling unemployment in Central Africa, ECA, through its Central Africa subregional Office (SRO-CA) and with support from GTZ, has set up a multipurpose multimedia centre in Republic of Congo to provide information and knowledge resources on employment opportunities for the youth as well as organize training and ICT capacity-building activities.

E-Commerce in North Africa with Arab Maghreb Union (AMU)

In North Africa, a study was undertaken in collaboration with Arab Maghreb Union (AMU) on the status of e-commerce development in the subregion and to examine the feasibility of launching a subregional e-commerce platform, which will facilitate e-commerce activities among member States. The results of the study focused on best practices in e-commerce and readiness for a joint regional platform. A plan for the development of the platform was discussed during the ECA Subregional Office for North Africa (SRO-NA) Trade Forum on "Trade for Growth and Job Creation", held in Marrakech, 19-21 February 2007.

AISI: A Decade's Perspective

ECA, through its Harnessing Information for Development subprogramme has been driving AISI implementation since 1996. This unique regional action plan aimed at promoting an inclusive Information Society in Africa has since provided a framework whereby ECA member States are building their national capacities in the use of ICTs for accelerated and sustainable development. The core of ECA activities in this area has focused on supporting African countries in formulating their e-strategies, enhancing information and knowledge development, strengthening outreach and communication, and promoting partnership and networking.

The "African Information Society Initiative (AISI): A Decades Perspective" published in 2007 provided a thorough analysis of the achievements and challenges faced as well as the way forward in terms of AISI implementation at the country and subregional level. The publication also documented the analysis made and put forward a roadmap, derived from the recommendations on the way forward. The document is available online at: http://www.uneca.org/aisi/docs/aisi+10.pdf

NICI good practices and lessons learned

Since the launch of AISI, ECA has been supporting member States in embarking on the development of NICI policies, strategies and plans that are instrumental for implementing the global visions enshrined in AISI at national level and for creating a conducive e-environment for liberalization and deregulation of the telecommunication sector. The introduction of policies and strategies is intended principally to assist countries to deploy, harness and exploit ICTs to advance their socio-economic development at the local, national and subregional levels.

Thus far, over 30 countries on the continent have embarked, in one form or the other, on the development of national ICT strategies. Even though the formulation of NICI plans and strategies have been based on national needs and development priorities as determined by all the relevant stakeholders in a given country, it has become necessary to document the NICI development process and status and evaluate the impact so as to build on a variety of best practice country models available on the continent. The NICI publication will provide:

- A detailed analytical report on the NICI development process - status, impact, challenges, constraints and lessons learnt from the process;
- An analysis of the challenges to policy analysis and policy implementation at the national level, taking into consideration technical, human and technological requirements;
- An assessment of the level of stakeholder participation in the process and critical examination of their roles in the policy development and implementation stages;
- Country-specific recommendations on improvement of the NICI process;
- A critical analysis of the policy links among ICT, telecommunications, and broadcasting and the convergence taking place;
- An assessment of the potential of countries that are implementing NICI plans to embark on knowledge economy-related initiatives and activities.

The online version of the publication is available at: www.uneca.org/aisi/nici/documents.htm

Report on role of development information in the economy: African e-markets

This publication entitled “Report on the role of development information in the economy: African e-Markets”, and published in 2007 offered recent materials and analysis of the development of e-economics and its contribution to African development. Although Africa is among the least connected continents in the world, the ICT penetration rate and contribution to African development is phenomenol.

In fact, several African countries have experienced triple-digit growth rates in Internet and mobile phone usage. Not only has Africa become better connected with the global economy, ICT has enhanced economic transactions in conventional economic sectors (e-banking, e-

finance, e-travel and tourism handling). It has also contributed to the emergence of new information based-markets and to the provision of social services (virtual-library, virtual-university, teleshopping, e-governance), to mention just a few such services. Subjects tackled in this volume include e-banking sector, e-library and information services in a knowledge-based economy, geo-information industry, ICT and poverty reduction, e- economic and monetary integration, gender and ICT and location-based services among others.

Needs assessment for the development of ICT standards for teacher training institutions (joint ECA-UNESCO-IICBA project)

ECA, in the context of the e-Policy Resource Network for Africa (ePol-Net: (www.epolafrica.org), which was set up with support from the Government of Canada to provide expertise, guidance and advice to African countries implementing national e-strategies, in collaboration with UNESCO-IICBA and UNESCO offices in Addis Ababa, is undertaking a Needs Assessment Study on "Development of ICT Standards for Teacher Training Institutions".

The overarching goal of the project itself, "ICT Standards for African Teachers" is to develop a set of guidelines and standards for enabling the African education system to face and to benefit from the change that new technologies are promoting in Africa. Specific objectives include:

- Assess and meet the needs of the teacher education institutions in terms of technology integration;

- Develop a set of standards and guidelines for teachers, educational leaders and policymakers to use in enhancing awareness of the role of ICTs in education and of the importance of media education;

- Encourage governments to endorse the standards and guidelines;

- Develop courses and workshops to equip teachers with new skills in the field of ICT in education and media education, in accordance with these standards;

- Receive, adapt and/or develop the materials needed: an assessment tool, curriculum framework, start-up kit, and training modules that meet the diverse needs of future teachers in sub-Sahara Africa.

This first phase of the programme will: assess needs on the use of ICTs in teacher training in Africa through collection of best practices and lessons learned; evaluate the level of standardization of ICT in education; and its linkage with the national ICT policies and plans across the continent. The findings and recommendations will be shared with the stakeholders involved in the next phases of the project (Ministries of Education, Teacher Training Institutes, other organizations active in the education sector in Africa and ICT policymakers).

Technology Parks, Incubation Centres, Centres of Excellence
Best Practices and Business Model Development

ECA, in the context of the e-Policy Resource Network for Africa (ePol-Net: www.epolafrica.org), which was set up with support from the Government of Canada to provide expertise, guidance and advice to African countries implementing national e-strategies, is undertaking a research study on best practices in S&T institutions that will lead to the development of a Business Model .

The global objective of the project is to present a comprehensive and comparative analysis of the overall situation, evolution of technology parks, centres of excellence, and incubators and incubees in identified countries of North Africa and Southern Africa, highlighting lessons learned, continental and worldwide best practices and developing a comprehensive business Model that can be used as a policy tool for development actors and decision-makers.

The study should be based on an extensive and forward-thinking economic analysis of Technology parks and Centre of Excellence Models that as a response to intensive technological innovation activities, R&D linked to productive sector, jobs creation and entrepreneurship culture development. The impact of the different main components and also roadblocks identified will have to be assessed from the perspective of the various players involved. Specific objectives include:

- Provide best practices and failure example;
- Assess the policy, legal, and regulatory framework and market barriers and opportunities/requirements in each of the subregion;
- Develop a comprehensive Business Model for technology parks and centres of excellence**.**

Policymaking support to African Regional Economic Communities (RECs)

AISI has been implemented mainly through the development of e-strategies/policies to deploy, harness and exploit ICTs for socio-economic development at the local, national and subregional levels, including national spatial data. At the subregional and regional levels, the vision of ECA/AISI provides the framework for:

- Formulating policies and plans through the regional economic communities (RECs) to, among other things, harmonize and coordinate national efforts as an integration strategy;
- Concentrating assistance in the areas of harmonization of national regulatory frameworks as countries deregulate and liberalize their telecommunication markets;
- Creating a framework for development of ICT infrastructure that can facilitate the regional economic integration goals of the continent;

- Strengthening capacity at the subregional level in ICT for Development; and

- Building a critical mass to facilitate regional integration through ICTs.

So far, there have been major achievements in harmonizing the national ICT policies and plans and in creating a subregional framework for regional economic integration:

- ECA, through the Global e-Policy Resource Network (ePol-Net) supported the East African Community (EAC) to develop an e-government strategy for the subregion. The EAC Regional e-Government Framework provides an action roadmap in strategic areas supported by an enabling legal/regulatory environment, secure information infrastructure and an adequate human resource base. The framework deals with *customs and immigration control, e-parliament, e-health, e-banking and e-procurement, e-commerce, e-tourism, and meteorological and tidal information*. The EAC Conference of Ministers approved the Regional e-Government Framework for EAC at its thirteenth meeting, which ended on 29 November 2006. This initiative is jointly implemented with the ECA subregional office, based in Kigali, Rwanda.

- An envisioning workshop on e-government was organized with ECA and ePolnet, in Bujumbura 08 - 09th May 2008; to allow Burundi joining the e-government strategy was completed for the East African Community (EAC).

- Since September 2005, the Economic Community of West African States (ECOWAS) and ECA have been working together to create an ICT policy and harmonize legal frameworks for the sub region. Draft Guidelines on fighting cyber crimes, e-commerce and Personal Data protection were produced. Work is underway to produce a draft guideline on e-signature. Effort is also made to derive from this work a Regional Legal ICT Framework.

- Assistance is also provided to ECOWAS for the enhancement of IT Services at the ECOWAS commission, and achieving the vision 2010.

- The draft ICT strategy Guidelines for the Common Market for Eastern and Southern Africa (COMESA) was adopted by the Fifth Annual General Meeting of the Association of Regulators of Information and Communication for Eastern and Southern Africa (ARICEA) in Cairo, Egypt 22-23 Feb 2007.

- Also, ECA has also supported the Economic Community of Central African States (ECCAS) and Central African Monetary and Economic Community (CEMAC) to formulate the ICT Strategy for Central Africa. The document has been updated by ECCAS for the adoption process.

Technical assistance in the area of regulatory reforms

Activities to promote the enabling environment of telecommunication sector are closely linked to NICI policy processes and the objective of creating a legal and regulatory framework to facilitate the ICT development. ECA in collaboration with its partners supported two countries, namely Sierra Leone and Nigeria, in conjunction with the NICI formulation processes.

Evaluation and monitoring of the ICT sector and its impact on information Society

In an effort to provide African countries with a framework to identify ICT indicators and build their capacity to measure ICT4D, the Scan-ICT programme was launched in November 2000 as a collaborative project between the Acacia programme of the International Development Research Centre (IDRC) and ECA, with financial support from the European Union (EU) and the Norwegian Agency for Development Co-operation (NORAD).

The Scan-ICT programme seeks to build support for the phased development of a comprehensive African capacity to define, collect and manage key information needed to support the growing investment in ICTs as well as the transition of Africa to an Information Society. The goal is to create a pan-African ICT network that would collect, analyse and disseminate all levels of ICT related knowledge in an open manner. The first phase of the Scan-ICT programme, which involved six countries (Ethiopia, Ghana, Morocco, Mozambique, Senegal, and Uganda), ended in 2004.

Evaluation of the first phase by African researchers, regulators and statisticians has yielded useful pointers for implementation at a larger scale with full implication of National Statistical Offices (NSOs). In line with this, it's hoped that information that would be obtained from the ICT indicators-gathering exercise would not only go beyond an inventory of the physical and infrastructure aspects of ICTs but also include qualitative data on ICT impact on the economy, labour and policy.

As a follow-up to the 1st phase of SCAN-ICT, ECA, with the support of the Government of Finland, is implementing the second phase of the programme with the full involvement of National Statistical Offices (NSOs) in Cameroon, Gambia, Ghana, Mauritius and Rwanda. Each of the countries identified the core ICT4D indicators, the methodology and institutional arrangements for leading the process and involving all the stakeholders. At the global level, the key stakeholders involved in the statistical measurement of the information society joined forces to create a global Partnership for 'Measuring ICT for Development', in June 2004.

ECA, together with the other UN Regional Commissions, is actively participating in the international partnership by leading the task group on e-government indicators and participating in other task groups such as ICT4D indicators for capacity building and database development. A regional workshop has been organized in collaboration with UNCTAD to review progress with regard to implementation of Scan-ICT Phase II, the status of ICT measurement in Africa, and availability of comparable data on ICT in the region.

Capacity-building activities

Information Technology Centre for Africa (ITCA) activities

With support from the Government of Japan, ECA has continued in 2007 supporting member States in capacity building on Information Society issues through its Information Technology Centre for Africa (ITCA)

ITCA's African e-Learning Initiative, an extension of its on-site capacity-building activity for African policymakers and other stakeholders in information society issues in general, and ICT policymaking in particular, has started offering courses. In collaboration with the Diplo Foundation of Malta, an online course on Internet Governance has been made available through the African eLearning Initiative. CePRC is also supporting ECA in sharing experiences and expertise on developing online training modules. As a result, other online courses will soon be available, including the area of ICT policies. A week long e-learning capacity-building workshop was conducted at ITCA, 13-17 August, 2007. The workshop aimed at developing the capacity of ISTD staff engaged in development and maintenance of an online learning system. More: http://www.epolafrica.org/elearnafrica/

ITCA is also involved in a series of wide-ranging capacity-building activities, from basic ICT skills to ICT policy training both on-site at ITCA and online through the African e-learning Initiative. To this end, a five-day capacity-building training for fifteen Ethiopian women media professionals was conducted at ITCA 27-31 August, 2007. The training, supported by the Africa Node of ePol-Net and the Government of Japan, included discussions on Internet services and tools used for searching the Internet for different types of content (text, audio, picture and video), advanced search techniques and features, and extensive hands-on training on web page development and blogging.

In addition, a series of capacity-building training activities for staff of the Ethiopian Customs Authority was delivered to 41 participants from 20 September to 29 November 2007. The training was part of ECA support to the Government of Ethiopia to effectively implement and maintain an UNCTAD-created Automated System for Customs Data, commonly known as ASYCUDA, which handles manifests, customs declarations, accounting, and transit and suspense procedures and also generates trade data that can be used for statistical economic analysis. In addition, it provides Electronic Data Interchange (EDI) between traders and customs.

The courses designed to support the existing ASYCUDA system were: a) Designing, working and hands on exercise on web-based technologies (August 20 – September 7) for 14 participants; b) Java Programming and methodologies and hands on exercise (September 26 – October 12) for 14 participants; and c) Structured Query Language programming and hands on exercise (20 – 29 November) for 13 participants. The current courses are designed to raise the capacity of the Ethiopian Customs Authority staff on the design, development and implementation of a system that would allow users to interface the existing ASYCUDA system through the Internet.

Several exhibitions were organised covering ICT for development resources and outputs of ECA activities in building member State capacity to use ICTs for accelerated and sustainable development. The joint ECA-African Union (AU) exhibition with the technical support of ECA, was held 25-30 January, 2007 at the United Nations Conference Centre (UNCC), Addis Ababa. The exhibition was part of the African Heads of States Summit on Science, Technology and Scientific Research for Development and Climate Change in Africa· More than 52 innovative African projects were exhibited and visited by the UN Secretary-General and several Heads of State and Government and other high-level African government officials. The Exhibits represented 15 member States, UN agencies, international and regional research networks and associations. H.E. Paul Kagame, President of the Republic of Rwanda, officially opened the Exhibition.

ECA has also mounted its own exhibition to promote AISI Science, Technology and Innovation activities and its various alliances strategies. For the Fifth Session of the Committee on Development Information (CODI-V) held 29 April-4 May 2007, ISTD organized an exhibition with 14 exhibitors participating.

Stakeholders Capacity Building

As part of its commitment of creating and managing knowledge at the continental level, ECA has been facilitating the activities aiming at building the capacities of stakeholders groups for the implementation of AISI, including the participation in policy formulation, analysis, consensus building, workshop, forums, research and access to information and knowledge resources. As a result more than three hundred ICT4D actors or network coordinators have benefited from the following activities.

Strengthening ICT4D network to support policy implementation at national and subregional levels

The Harambee project launched in 2005, a joint-initiative between ECA, the Association for Progressive Communications (APC) and Bellanet under the framework of the Partnership for ICT in Africa (PICTA), activities has continued during 2007. The Harambee project aims at strengthening network activities through capacity building, and creating of opportunities for information and knowledge sharing and stakeholder involvement in NICI policy implementation.

Networks, involving more than twenty African countries, that have benefited from small grant funds and capacity-building activities from the project in 2007 include: (a) APC-Africa-Women (AAW), (b) Capacity Building for Community Wireless Connectivity in Africa, (c) Women of Uganda Network (WOUGNET), (d Academia Research Network. (ARN), (eAfrican Youth ICT4D Network (AYIN), (f) Constitution and Reform Education Consortium (CRE-CO) and (g) NGO Policy Forum (NFP). These activities have helped networks to increase their understanding of collaborative and partnership processes for the implementation of ICT Policy and strategies.

Strategic meeting to strengthen African Civil Society Network in the Information Society (ACSIS), March 2007

ECA in the framework of the African Information Society Initiative (AISI) and the World Summit on the Information Society (WSIS) has supported the launching of the African Civil Society Network in the Information Society (ACSIS: www.acsis-africa.org). Support to Network members through various capacity building activities has continued during 2007 and include support to participation in ICT4D forums and Conferences.

Particularly, a strategic meeting, supported by ECA, to assess the impact of the network on the development and implementation of various national ICT Policies took place at the United Nations Conference Centre of the Economic Commission for Africa (ECA), Addis-Ababa in Ethiopia on 21 March 2007. The meeting brought together twelve (12) Members of African Civil Society Network in the Information Society (ACSIS) from Burkina-Faso, Cote d'Ivoire, Ghana, Guinea, Senegal, Tunisia and Tanzania.

The meeting discussed ACSIS coordination strategy for implementing AISI. Emphasis was given to project development, partnership with Governments, UN Agencies through the United Nations Development Assistance Framework (UNDAF), and other bilateral partners at national level. It has increased participants' knowledge in ICT4D project and partnership development. Organized alongside the African Civil Society Forum, jointly organized by the Conference of NGOs in Consultative Relationship with the United Nations (CONGO), the African Women's Development and Communication Network (FEMNET), the Economic Commission for Africa (ECA) and African Union (AU), the meeting was an opportunity for ACSIS to submit recommendations to the global Civil Society Forum. These recommendations were included in the Global Forum report, which have submitted to the Ministerial Declaration of the UN Economic and Social Council High-level Segment in July 2007.

GKP Africa preparatory forum on " Knowledge and Access", in Ouagadougou, Burkina Faso

In the view of providing a Global Knowledge (GK) III-preliminary regional forum, The Economic Commission for Africa (ECA)- the African regional node for the Global Knowledge Partnership (GKP),in collaboration with Swiss Development Cooperation (SDC) and with the support of IDRC organized 5-6 June 2007, a GKP Africa preparatory meeting on " Knowledge and Access", in Ouagadougou, Burkina Faso. The forum discussed the issues such as: market opportunities, knowledge as a public good, language and culture, inclusive solutions for women and youth, innovative technologies, around the three main GK III themes through a series of presentations and breakout sessions. Over forty five (45) participants drawn from Benin, Burkina-Faso, Central African Republic, Cameroon, Congo, Cote d'Ivoire, DRC, Egypt, Ethiopia, Gambia, Ghana, Guinea, Kenya, Mali, Mauritius, Morocco, Niger, Nigeria, Rwanda, Senegal, South Africa, Swaziland, Uganda, Tanzania, and Tunisia were in attendance.

The forum has helped to provide an opportunity for GKP Africa members as well a other stakeholders including policymakers, media, youth, women, academia and private sector representatives, to debate and explore the prospects made possible by the increasing importance of knowledge in areas such as community empowerment, technology policies in knowledge societies, innovative technologies for women, youth and rural societies and the role of media in promoting knowledge societies.

It has also helped to create awareness among African media practitioners on the themes of GK3: "Emerging People, Emerging Markets, and Emerging Technologies". The Africa position to be fed into the GK-3 sessions has been agreed. Organized as a pre-event to the ICT best practices Forum that took place 7 - 9 June 2007, the forum was an opportunity for participants to interact, share best practices on ICT4D applications. More than 700 delegates convened for the ICT Best Practices Conferences, jointly organized by ECA, African Development Bank, Microsoft and the Government of Burkina-Faso.

Promoting e-Parliament in Africa

As part of the assistance towards the implementation of the African Information Society Initiative (AISI) and its commitment in creating and managing knowledge at the continental level, the Economic Commission for Africa has been facilitating the activities aiming at building the capacities of stakeholders groups for the implementation of African Information Society

Initiative (AISI) and the World Summit on Information Society (WSIS) Plan of Actions. These activities include participation in policy formulation, analysis, consensus building, workshop, forums, research and access to information and knowledge resources.

Particular emphasis has been placed on Parliaments and Parliamentarians and their pivotal role in mobilizing resources, passing law, debating issues of national concern and holding governments to account for their commitments. The Parliaments of Gambia, Kenya, Niger, Tanzania, Uganda, Swaziland, and Zambia and Parliaments from SADC member States have benefited from this programme.

Internet Governance

Following adoption of the Tunis Agenda for the Information Society at the second phase of the World Summit on the Information Society (WSIS) held in Tunisia in December 2005, the United Nations Secretariat organized consultations on the convening of the Internet Governance Forum (IGF) as requested by world leaders.

Two meetings of the IGF were organized respectively in Athens and Rio. In preparing the Rio conference, ECA and GAID-Africa in cooperation with the African Union, ISOC-Africa and ICANN organized a training workshop and regional consultations in Kigali, Rwanda, from 25 to 29 October 2007, as a pre-event of "Connect Africa Summit". The objective was to impart to African policymakers the skills and knowledge required to participate meaningfully in the global debate at various Internet Governance forums and in the use and exploitation of the Internet to achieve the MDGs.

The Connect Africa Summit

The Summit was held in Kigali, Rwanda from 29-30 October 2007. It was organized by the International Telecommunication Union, the African Union, the UN Economic Commission for Africa, the World Bank Group, the United Nations Global Alliance for ICT and Development, the African Development Bank, the African Telecommunication Union and the Global Digital Solidarity Fund. ECA and GAID-Africa were in charge of coordinating the Session 4 on *"Capacity Building and Deploying Applications for E-Services"* and developing the background document related to Session 4 to be used for the Summit. The Summit adopted the following goals and commitments at Kigali:

- **Goal 1:** Interconnect all African capitals and major cities with ICT broadband infrastructure and strengthen connectivity to the rest of the world by 2012;

- **Goal 2**: Connect African villages to broadband ICT services by 2015 and implement shared access ini**t**iatives such as community tele-centres and village phones;

- **Goal 3:** Adopt key regulatory measures that promote affordable, widespread access to a full range of broadband ICT services, including technology and service neutral licensing/authorization practices, allocating spectrum for multiple, competitive broadband wireless service providers, creating national Internet Exchange Points (IXPs) and implementing competition in the provision of international Internet connectivity;

- **Goal 4:** Support the development of a critical mass of ICT skills required by the knowledge economy, notably through the establishment of a network of ICT Centres of Excellence in each subregion of Africa and ICT capacity-building and training centres in each country, with the aim of achieving a broad network of inter-linked physical and virtual centres, while ensuring coordination between academia and industry, by 2015; and

- **Goal 5:** Adopt a national e-strategy, including a cyber-security framework, and deploy at least one flagship e-government service as well as e-education, e-commerce and e-health services using accessible technologies in each country in Africa by 2012, with the aim of making multiple e-government and other e-services widely available by 2015.

The African Network of the Global Alliance for ICT and Development

The Global Alliance for ICT and Development (GAID) was launched in December 2006 by the UN Secretary General, based on the UN's commitment to achieving the internationally agreed development goals, including the Millennium Development Goals and other development Agendas. The GAID-Africa Network was launched on 23 March 2007, in Addis Ababa (Ethiopia). The node is hosted by UNECA, supported by an eight members Steering Committee.

The GAID-Africa framework was designed to provide a lightweight framework to provide the requisite and easily implementable modalities for ensuring Africa's effective participation in the GAID process. It also provides a suitable framework for identifying and implementing Africa-specific initiatives. The objective was put in place a structure which would not compete with existing initiatives but instead would be operationalized through them. The expectation is that by implementing the proposed framework, Africa working through its constituencies: governments, private sector, civil society and academia would play an effective and active role in the GAID process including:

- Mainstreaming GAID activities and initiatives into ongoing ICT4D initiatives on the continent including AISI and ARAPKE; and

- Contributing to the overall GAID policy-dialogue process on advancing the global ICT4D agenda and making African views reflected.

The following was achieved by the GAID Africa network:

- Workshop on Internet Governance, held in Kigali from 245 - 28 October 2007;

- The Connect Africa Summit, held in Kigali, from 29-30 October 2007;

- The GAID Africa Promotional Plan, to identify all innovative events (underway or planned) in the field of ICTs in the near future in Africa in order to facilitate the integration of GAID components and activities.

Tunis +2: ICT Investment in Africa, Hamammeth, 20 –21 November 2007

At the occasion of the Second anniversary of the second phase of the World Summit on the Information Society (WSIS) held in Tunis in 2005, the Tunisian Government is organizing the ICT 4 All Forum at the Medina Conference Centre, Hammamet, Tunisia. The event, which includes a forum and a technological exhibition, puts together high-level policymakers, government officials, representatives from the private sector, potential investors as well as experts from international organizations.

The Forum addressed the issue of Public Private Partnership (PPP) in ICTs as a tool for development through:

- Exchange of best practices and experiences in PPPs;
- Exhibition of products and services of ICT companies;
- Presentation of models, approaches and national strategies for establishing successful PPPs; and
- One-to-One meetings with private sector and international organizations to discuss and explore business opportunities

The Forum is in line with paragraph 98 of the Tunis Agenda for the Information Society adopted by WSIS in Tunis in 2005, which states:

"We encourage strengthened and continuing cooperation between and among stakeholders to ensure effective implementation of the Geneva and Tunis outcomes, for instance through the promotion of national, regional and international multi-stakeholder partnerships including Public Private Partnerships (PPPs), and the promotion of national and regional multi-stakeholder thematic platforms, in a joint effort and dialogue with developing and less developed countries, development partners and actors in the ICT sector."

Building ICT Research and Innovation Capacity in Africa

In re-affirming the role of African universities and research institutions, ECA created VarsityNet, which is part of the Africa Learning Network (ALN), created to build the R&D academic capacity in in the Information Society. ALN was launched to provide a platform and space for leading African academics and researchers to enhance their role, and to reflect on intellectual issues related to the Information Society. ECA, in collaboration with Ford Foundation and the Government of Finalnd has since taken the lead in the consultations with key academic figures on the African continent and launched four Academia Research Networks (ARNs).

The AISI ARN and VarsityNet have been engaged in a series of research and development activities since their inception in 2003. Research and innovation activities are underway in the areas of African languages and content development (Cameroon), Open Source Software (OSS) localization and health and commerce information system (Ethiopia), ICT industrializations (Mozambique), and Information Society indicators (Tunisia).

ICT Industrialization in Ethiopia, Mozambique and Tanzania

Mozambique (the Eduardo Mondlane University and the Mozambique Information and Communication Technology Institute), in collaboration with Ethiopia (the University of Addis Ababa) and Tanzania (University of Dar Es Salaam), is leading one of the four thematic research networks established during the ARN brainstorming, the "Industrialization of ICTs in Africa". Based on ARN conclusions that were identified as crucial to development of human resources both in ICT and entrepreneurship development, and centres of excellence for ICT education and in-house software applications development should be set up. These centres of excellence should be used to develop "flagship projects" for future ICT entrepreneurs, to be nurtured within the MICTI Technology and Business Incubator.

Promotion of local languages in Cameroon

In the framework of the NICI Policy and Plan process in Cameroon, the need to integrate ICT in education and to promote local language in the cyberspace was addressed. The issue was also highlighted within the framework of the second phase of the SCAN-ICT supported by the Government of Finland. In response to that, the second phase of the research activities applied to Cameroon intends to experiment with a model for the utilization of ICTs in African languages, particularly in rural schools, during a period of three years.

The short-term research activities on African languages noted that only a few African languages have online resource materials, such as dictionaries, translated documents, library content, audio files and news programmes. In fact, only 2 per cent of the African local languages are made available online. These languages include Swahili, Hausa, Yoruba, Igbo, Luganda, Masai, Sesotho, Shona, Ndebele, Akan, Xhosa and Upkila.

The second ARN research activity undertaken in 2007 focused on the development of a Rural Electronic Schools Model in African Languages (ERELA) in Obout and Metsah Villages, Cameroon". The ARN group working on promoting African language local content in cyberspace has started implementation of its research outputs in two primary schools in Cameroon villages: Obout and Metsa, under the initiative called: "Generalizable Model for Rural Electronic Schools in African Languages (ERELA).

ERELA is built on the "Operational Research Programme for Language Education in Cameroon/Programme Opérationnel d'Enseignement des Langues au Cameroun (PROPELCA)", spearheaded by the National Association of Cameroonian Language Committees (NACALCO) aimed at teaching and learning Cameroon local languages in the primary and secondary schools programmes. Obout Primary School is situated 80 km. from Yaoundé. In the framework of ERELA, two teachers were trained and a complete ERELA Information System including a computer, printer and UPS, was delivered to the school.

At installation, the school did not have electricity and the system was put 100 metres from the site. The enthusiasm that the project brought within the community has helped to subscribe the school to electricity and get a room provided for the ERELA system. Instead of devoting the system only to the training of students in computerized local languages, the ERELA

system is becoming a community development tool. Other activities to train teachers and the community are planned. The lack of funding for other phases constitutes the main problem.

In conclusion, the two communities are happy with the introduction of the ERELA system in the schools. As noted by one of the Headmasters, *"The system is having a positive impact on students' learning and behaviour"*. Despite the fact that the learning of the local language with the computer is at infancy, community enthusiasm is growing due to the presence of the tool. This led to the proposal (which will be adopted as soon as possible) of a strategy to ensure the project extension and sustainability before requesting Government intervention.

OSS Localization: Health & Commerce Information System for Ethiopia

AAU VaristyNet is a research and development project implemented at Addis Ababa University, Department of Computer Science with the support of ECA's VarsityNet programme. The project has been able to show how this new mobile telephone infrastructure can be used in health and commerce, two areas critical to development of African countries. In addition, it followed up on research done in the area of online character recognition for Ethiopic characters, which is crucial for the use of local languages on mobile devices.

The research outputs are expected to be showcases that would enable policymakers to better envisage how the mobile telephone infrastructure could be used to address the development problems of their countries. The project has successfully accomplished its objectives and as a result has made some significant breakthroughs:

- A prototype has been developed to enable medical practitioners to enter clinical data using mobile devices as well as to access patients' records using the same mobile devices. The prototype can be demonstrated and serves to promote the new technology to be used in such medical institutions as hospitals, clinics, and mobile health centres, etc.). The mobile device connects to hospital medical databases, retrieves patients' records requested and returns the response for the client. Then, the requested data will be displayed on the Query Result Interface of the PDA screen;

- Research was completed that showed the importance of using simplified Ethiopic script for online handwriting recognition. Reasonable recognition rates can be obtained despite the high number and complexity of the original Ethiopic script; and

- A prototype for an e-payment system has been developed, taking security aspects into consideration, which probably makes it a pioneer in the area. It is accessible from mobile devices as well as from computer interfaces.

Overall, this project considerably improved skills and experience of the researchers and the students who participated in it. It has also opened new research areas that might not have been possible without the support provided through cooperation with Finland.

Information Society Indicators for Tunisia

The ARN on the Information Society indicators for socio-economic impact used Tunisia as a case study. So far, the team has successfully established a collaboration framework with

existing Tunisian statistics bodies including, the National Statistics Council, the National Institute of Statistics, the Statistics Training Institution and other specialized statistic bodies. This collaboration framework, as requested by the terms of reference (TOR) has set the base for useful research activities.

The team continued its work and has successfully finalized the following sub-research activities:

- Assess the " state of the art and benchmarking of the indicators of impact; Define and compile the core composite indicators for information society measurement and benchmarking (indicators of penetration, usage and impact);

- Develop a manual of index cards of indicators (every index card includes a definition and the method of calculation for every indicator);

- Develop a core of Partial and Composite indicators and their definition and methodology of calculation.

The team is expected to continue the data collection, treatment and analysis with the support of the lead institutions and identify socio-economic impact information society indicators to be adopted and validated by a review workshop.

The Inter-University Council for East Africa (IUCEA) VarsityNet R&D project

The Inter-University Council for East Africa (IUCEA) VarsityNet project was jointly implemented by the Universities of Nairobi (Kenya), Makerere (Uganda), Dar-es-Salaam (Tanzania) and the Jomo Kenyatta University of Science and Technology (Kenya).

Activities of the first part of this phase mainly involved the establishment of a clear understanding of the requirements that will assist in developing a system to manage students' academic records at the IUCEA member universities through consultative meetings with various stakeholders. The requirements established in the first part were then utilized in the second part to develop a software prototype for managing university students' information systems.

The prototype has been developed by Makerere University using the requirements collected from stakeholders at a sample of universities in East Africa. The prototype developed has focused on functionalities provided by an academic records module with an incorporation of some of the features from registration and assessment modules. The information system functionalities are grouped based on user groups such as: (a) technical systems administrators, (bi) academic topic officials or administrators, (c) students, and (d) lecturers. After the in-house testing in Makerere University, implementation and testing of the software prototype was undertaken in other universities.

Two universities in each of the three East African Partner States country (one public and one private) have been selected for the testing and implementation phase of the software prototype. These universities include: Makerere University and Uganda Martyrs University in Uganda, Moi University and Daystar University in Kenya and Open University of Tanzania, and Hubert Kairuki University in Tanzania. The system has been implemented and tested at the six

universities. A two-day training of trainers course was organized by developers from Makerere University, and the system was implemented in each university.

Member universities recognized that the Students' Information Management System (SIMS) is an integrated application software for managing student academic and curriculum data, degree programmes, academic departments and academic staff data. It has been accepted because it is developed using the Open Source software, so there is no need for licenses.

These activities in particular and the project at whole have enhanced the research capacities of universities, especially with respect to software development using Open Source software (OSS). It has assisted in the development of cost-effective software systems that solve real problems at the universities. The IUECA Community of developers have been established to maintain and upgrade the system.

Science with Africa Conference, 3-7 March 2008 Addis Ababa, Ethiopia

The United Nations Economic Commission for Africa (UNECA), the African Union Commission (AUC) and their partners organized a well-attended and a highly successful conference titled, "Science with Africa", on 3-7 March 2008 in Addis Ababa, Ethiopia.

The conference was attended by about 800 participants, mostly from African governments, academia, business community, media, civil society organizations and students. There was a good representation from the development partners and international organizations and companies dealing with science and technology (S&T). The main objective of the conference was to stage a platform for in-depth exploration of ways in which science, technology and innovation (STI) can be of service to the African population, especially on the importance of STI being an engine for accelerated economic growth and poverty reduction on the continent.

The conference featured 10 opening and keynote speeches, 24 plenary speeches and presentations in 5 plenary sessions and 53 full and short paper presentations in 9 breakout sessions focusing on topics/issues pertaining to Africa's socio-economic development including: (a) science, technology and innovation (STI) policies, (b) energy, water, transport and infrastructure (c) agriculture, health and life sciences; including developing guidelines for health research in Africa (d) climate change, (e) Intellectual Property Rights (IPR), patents and technology transfer; (f) information and communication technologies (ICTs), (g) STI capacity building, including international programmes for STI capacity building in Africa, (h) generation and selection of R&D projects: R&D idea factory and Science with Africa Marketplace. Crosscutting issues such as STI capacity building and climate change in Africa formed part of the lively discussions. Comprehensive recommendations related to each of the above theme were made (see full report attached in Annex I).

The Conference overall recommended that ECA, in collaboration with AUC and UNESCO, and under the framework of the AU/NEPAD S&T Consolidated Plan of Action, will constitute a Working Group to define the programme priorities for implementation of the recommendations of this conference. Implementation will be at the regional, subregional and country levels, within the established mandate of each institution.

Second Ordinary Session of the African Union Conference of Ministers In Charge Of Communication and Information Technologies, 11-14 May, 2008, Cairo

The meeting was held from 11 to 14 May 2008, in the conference Centre of the Fairmont Towers Hotel, Cairo, Egypt on the theme "bridging the digital divide". It was attended by 30 member States and several African and international organizations as well as private sector and civil society entities.

The meeting adopted a new 5 member bureau with Nigeria as Chairperson supported by a 12- member Steering Committee, including ECA.

The meeting announced approval by the European Union of three ARAPKE project proposals for financing, including the proposal submitted by ECA for the African Youth Information Network (AYIN). Among the recommendations of the conference, the AU Commission was requested to work with ECA to mobilize resources for ARAPKE implementation. Also the meeting adopted a reference framework on harmonization of policies and regulations in the telecommunication/ICT sector in Africa and recommendations for strengthening the postal sector.

3. Outreach and Communication

AISI Media Awards 2007

The AISI Media Award programme was introduced by ECA in 2003 to encourage more informed coverage of the information society and ICT for development issues in Africa as part of the AISI Outreach and Communication Programme. The Awards are aimed at individual journalists and media institutions based in Africa that are “promoting journalism which contributes to a better understanding of the Information Society in Africa". The 2007 edition of the Awards ceremony was held on 11 December 2007 during the Third Global Knowledge Conference (GK3) that took place 11–13 December 2007 in Kuala Lumpur, Malaysia. The categories included print, radio, TV, reporting on ICT policy, ICT research, and local content applications.

Partners participating in this endeavour included RDRC, IICD, SDC, and GKP. Entries to the 2007 Media Awards totalled over 125 under the eight categories. A Panel of Judges composed of six renowned personalities in ICT4D in Africa identified eight winners and eight finalists, who have made a significant contribution to promoting and raising awareness on the Information Society in Africa based on the criteria set under each sub-category.

Winners and finalists came from Benin, Burkina Faso, Egypt, Ghana, Kenya, Malawi, Mali, Nigeria, Tanzania, Uganda, and Zambia. Prizewinners received their Prizes and certificates during the Award ceremony held during GK3. Over 1000 GK3 participants including the Malaysian Minister of Energy and Communication as well as the Directors of the three AISI Media Awards partners attended the Awards ceremony. More information about the award ceremony including a picture gallery is available at: http://www.uneca.org/aisi/mediaaward.htm

2007 Technology in Government in Africa (TIGA) Awards

ECA was requested by African countries to showcase ICT best practices to boost knowledge sharing and avoid duplication of efforts, as well as speeding up the use of ICT as an engine of growth. The first ever Technology in Government in Africa (TIGA 2007) awards was organized as a side event of the CODI-V meeting, which took place 30 April- 4 May 2007 in Addis Ababa, Ethiopia on the theme "Employment and the Knowledge Economy". TIGA Awards is co-organised by ECA and the Canadian e-Policy Resource Centre (CePRC).

Twelve innovative projects taking Africa forward in the field of information technology were rewarded. The awards fell into four categories: public service delivery to citizens or communities; improved health services through the use of Information and Communication Technology (ICT); improved educational services through the use of ICT; and Public Private Partnership in economic and financial e-services delivery. The TIGA initiative received strong backing from the Finnish and Italian Governments, Ethiopian Airlines, Microsoft and the Nokia-Siemens Networks, which all stressed that the continent's future lay in the development of information technology and education. Additional information is available at http://www.uneca.org/eca_resources/news/2007/tigaawards.pdf

Leveraging through partnerships

Collaboration among continental institutions, UN Agencies and development partners working for Africa or in pursuit of its interests is key to harnessing the required resources, ensuring coherence and avoiding duplication of activities. Building and strengthening partnerships in the Information Society is therefore integral to the ECA strategic orientation.

ECA continues to leverage on a number of bilateral and multilateral partnership mechanisms to carry out its activities. It continues to provide the secretariat for the Partnership for ICTs in Africa (PICTA), an informal group of partners working to leverage resources and expertise to build Africa's Information Society. ECA also serves as the Africa Regional Focal Point for the Global Knowledge Partnership (GKP), and plays an important role in ensuring African stakeholders' participation in GKP activities on resource mobilization, poverty reduction, access to knowledge and education.

ECA is also active in the work of the Partnership on Measuring ICT for Development, a global partnership initiative comprised of International Telecommunication Union (ITU), Organization for Economic Cooperation and Development (OECD), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific and Cultural Organization (UNESCO), African Centre for Statistics, ACS/ECA, Economic Commission for Latin America and the Caribbean (ECLAC), Economic and Social Commission for Asia and the Pacific (ESCAP), Economic and Social Commission for Western Asia (ESCWA), UN ICT Task Force and the World Bank, aimed at defining and collecting a set of common ICT indicators for countries to produce information society statistics.

An interregional alliance led by ESCWA, involving all the five UN Regional Commissions is underway, aimed at establishing global/regional knowledge networks for community development and ICTs. Priority areas include employment, education, gender and

health whereby ICT access centres will be transformed into smart knowledge hubs regularly accessed by beneficiaries to gain, share and organize knowledge relevant to particular communities.

Bilateral partnerships continued to be strengthened. For example, cooperation between ECA and Finland was strengthened focusing on policy formulation and implementation, telecommunication regulatory issues and research and innovation; with the Government of Canada on the Global Electronic Policy Resource Network (ePol-Net) project, of which ECA acts as the African regional node to support e-policy formulation and implementation. Other bilateral support has been for outreach and building stakeholdership for the Information Society from the Swiss Development Cooperation (SDC) and the Geselleschaft für Technische Zusammenarbeit (GTZ); and on land information policies and other geo-information initiatives from the Governments of Korea and Canada. In addition, as part of the Interoperability Task Group of the United Nations Geographic Information Working Group (UNGIWG), ECA is collaborating with UNEP to pilot an innovative spatial data interoperability platform. ECA is also a member of the United Nations Group on the Information Society (UNGIS).

As part of its commitment to creating and managing knowledge in the continent, ECA continues to partner with African universities and research institutions, as well as civil society, youth, media organizations and African Parliaments around policy analysis, consensus building and advocacy in the Information Society issues. Other outreach materials and services produced by ECA to help promote public awareness on ICTs for development issues included a series of policy briefs and publications. In addition, two video programmes were produced to highlight the challenges and opportunities ICT present to Africa.

The Fifth Session of the Committee on Development Information (CODI-V), 29 April to 4 May 2007

The Fifth Session of the Committee on Development Information (CODI-V) took place in Addis Ababa from 29 April to 4 May 2007. This session started with workshops and special events held on 29 and 30 April 2007, during which several emerging issues related to the areas of competence of CODI, and the specific theme of this session were reviewed in technical settings. Related side events and exhibitions of technical materials and services also took place.

The theme of CODI-V was "Employment and the Knowledge Economy." Various plenary and sub-committee meetings were devoted to examining the various aspects of the theme, including:

- Information society and knowledge economy policies and strategies in support of enterprise development and employment creation;

- Access and management of information and knowledge to enhance innovation and productivity; and

- Measuring and mapping employment in the knowledge economy.

The following new bureau officers were elected by acclamation:

- Chairperson: Senegal
- First Vice Chairperson: Cameroon
- Second Vice Chairperson: Swaziland
- First Rapporteur: Kenya:
- Second Rapporteur: Morocco

The re-structuring of ECA in 2006, and the creation of the a new division called ICTs, Science and Technology Division (ISTD), involved programme restructuring, which resulted in a new set of intergovernmental machineries. In the new structure, the successor to the Committee on Development Information (CODI) is known as the Committee on Development Information, Science and Technology (CODIST). The Terms of Reference of CODIST were introduced by the Secretariat, which informed the meeting that CODIST would be acting within the framework of the policies and procedures of the United Nations, under the general supervision of the ECA Conference of Ministers. Participants reviewed the CODIST terms of reference and recommended that follow-up meetings with RECs to develop subregional CODIST work programmes for the coordination of national CODIST activities in each subregion should be organized

This new committee will be serviced by the ISTD/ECA, which replaced the Development Information Services Division (DISD). Another new committee created out of CODI is the Committee on Statistics (Stat COM-Africa), which will be serviced by the new African Centre for Statistics (ACS). CODIST will focus on information society and science and technology issues, including enhanced roles of ICT for development, knowledge economy, and improved research and innovation capacity of African institutions and centres of excellence in science and technology, through effective regional and international networking, while Stat COM-Africa will focus on issues that impinge on the development of enhanced statistical capacity in member States, to enable adequate planning for MDGs achievement and monitoring of development trends in this area.

The sub-committee made the recommendation that the Sub-Committee on Knowledge, Libraries and Information Services for Development (KLIS) should continue to exist as a distinct sub-committee of CODIST. The KLIS Subcommittee discussed the position of KLIS in the new structure and programme of ECA, and stated that library and information services professionals in Africa received its creation with excitement and hope.

Annex I: Development of national geo-information policies

An important aspect of ECA's policy formulation work is the development of national geo-information policies, as well as their integration into national e-strategies:

Building Spatial Data Infrastructure

In light of the new paradigm of positioning development information activities in the context of the African Information Society Initiative (AISI), all activities in the field of geo-information for the production, processing, management, dissemination and utilisation of spatially enabled information in Africa have been designed around the concept of Spatial Data Infrastructure (SDI). ECA interventions have included assistance with organizing and facilitating stakeholder workshops (Burkina Faso, Swaziland, Uganda and Rwanda in 2006, Botswana in 2007); advisory services on the establishment of NSDI steering bodies (Ethiopia in 2006; Cote-d'Ivoire and Burundi in 2007); review of reference materials and draft policy documents to integrate NSDI into NICI (Burkina Faso in 2006; Sierra Leone in 2007); consultancy services (Burkina Faso in 2006; Sierra Leone in 2007).

Progress in establishing SDI has, however, not matched the efforts. SDI implementation in many countries stopped after the setting up of Steering Committees. Part of the reason for the slow progress is the high cost in implementing technical SDI aspects. As a way of moving the SDI initiatives forward to keep pace with progress in mainstream NICI strategies, ECA proposed integration of NSDI policies into NICI strategies and plans.

Integrating NSDI into NICI Policies

The concept of integrating SDI into the NICI process was approved by the fourth session of CODI (CODI-IV). In this regard, ECA now ensures and facilitates involvement of the geo-information community in the NICI process.

In November 2006 a joint NICI/SDI Workshop was organized for the NICI and SDI task managers in six countries, to work together and share experiences and to develop the activity plan and road map for their various countries to review and use to finalize their respective NICI plans to incorporate SDI issues and components. The countries that participated in the session were Ghana, Malawi, Nigeria, Rwanda, Sierra Leone, and Swaziland, with Côte d'Ivoire as observer. The Swaziland NICI provided for SDI and it now remains for the full SDI document to be developed as a technical annex of the main document. ECA is working with Ghana to strengthen the links between its SDI (National Framework for Geographic Information Management – NAFGIM) and the ICT for Accelerated Development policy and plan. Burkina is on the road also to integrate its National Statistics System in the process. A meeting was organized to bring stakeholders into the formulation of NICI policies in Burkina Faso.

Publication on Land Management Information Systems in the Knowledge Economy

With advances in ICT generally and GIS in particular, management of land-related information have been evolving the concept of the e-cadastre. However, African countries have not been involved in these developments. ECA has therefore prepared a publication on land management information systems in the knowledge economy. A symposium was organized jointly by ISTD/ECA the Natural Resources Canada's Earth Sciences Sector, as a prelude to prepare the publication. It contains guiding principles to govern land management information systems in Africa. It is expected that these guiding principles will greatly complement the ongoing efforts of member States to formulate and implement national land policies.

Building Fundamental Datasets

One of the activities being undertaken under the "Mapping Africa for Africa" (MAPA) initiative is the identification and provision of fundamental datasets for every country. However, while implementing this recommendation, it was noted that there is no standard definition of the term "fundamental datasets", nor a consistent set of what should be included. The first step was therefore to propose a consistent definition and content, so as to enable cross-referencing of information across member States. The Government of South Africa provided funds for a study to be undertaken to define Fundamental Datasets in the African context. This meant conducting an extensive user needs analysis involving acknowledged subregional, regional and global partners. The outcomes report provide a continental common definition of what constitutes a minimally necessary core of geospatial data and information products to which policymakers can add other sectoral datasets to ensure geographic consistency in making decisions on socio-economic development issues.

Establishing Clearinghouse Services

A very important component of spatial data infrastructure is the clearinghouse system that enables users to search metadata of available data sets. As part of the work in developing SDI, ECA maintains a metadata clearinghouse system. One of the objectives of maintaining the clearinghouse system is to provide a facility for member States to publish the metadata of their available data holdings, so that decision-makers can discover and use accurate data sourced from their original producers, rather than derived data from third parties.

The ECA Geo-information Clearinghouse is a database of 10,000+ geospatial metadata records that allows our member States and partners to search and discover available geo-information on the continent. Five metadata nodes are maintained for the Ethiopian Natural Resources Metadata (ENRAEMED), the African Water Resources Clearinghouse (AWICH), RECTAS, RCMRD, and Mapping Africa for Africa.

GIS Support for Plan Directeur Consensuel de Transport en Afrique Centrale (PDCT-AC)

PDCT-AC is a consensual plan adopted by CEMAC, ECCAS, BDEAC and ECA for the accelerated development of the transport infrastructure in the Central African subregion. The plan calls for a comprehensive database system based on a GIS platform to support the prioritization of the various axes and corridors, as well as serve as a tool for resource mobilization. This GIS transport database was developed jointly with the ECA office in Central Africa The data content includes road and rail segments, their conditions, priority codes and availability of funds for the project. Airports are also included .The database and application, which are available on the internet, were packaged on a CD for the member States. Also, the SRO has ordered 500 prints in A2 poster size for advocacy purposes.

Transport Infrastructure Database (TIDB)

Following on the lessons from the PDCT-AC GIS, another transport infrastructure database (TIDB) covering the whole of Africa is being developed with initial input from the African Union Commission of Infrastructure and Energy. The database will contain all-modes transport infrastructure data to support analyses, planning decision-making and monitoring of transport infrastructure elements.

This database is aligned to the transport model of the United Nations Spatial Data Infrastructure (UNSDI) being developed under the auspices of the United Nations Geographic Information Working Group (UNGIWG), led by the United Nations Joint Logistics Centre (UNJLC). Currently, the segments of the trans-African highway have been entered, together with proposed priority transport infrastructure projects of the various regional economic communities and specialized technical organizations.

SALB project

ECA continued to produce a comprehensive digital database of Second Administrative Level Boundaries (SALB) in Africa. Over the reporting period, progress was recorded in nine countries bringing the number of countries with maps fully validated to 17, and a further eight countries only awaiting final validation by the national mapping agencies.

AFREF

ECA pursued its effort to develop through the African Geodetic Reference Framework (AFREF) Project, a unified geodetic reference frame for Africa. In collaboration with the Ghana Institution of Surveyors, the International Federation of Surveyors (FIG) and other partners, a workshop was organized on AFREF during the 5th FIG Regional Workshop in Accra, Ghana, in March 2006. In July 2006 a technical workshop, co-sponsored by 6 organizations incl. IAG, UNAVCO, UNOOSA, was convened in Cape Town, South Africa. More than 40 delegates and 15 presenters attended. In August 2007,
another technical workshop was organized in collaboration with RCMRD with the support of the University of Lisbon, the University of Beira-Interior (Portugal) and Hart RAO. Attended by

representatives from eight countries mainly from East Africa, the workshop dealt with GNSS reference stations and processing of GNSS data.

Leica and Trimble, two leading corporations in the market of GNSS receiving stations have donated respectively three and five GPS permanent stations to the International Steering Committee of AFREF. The three Leica GPS stations were installed within RCMRD, RECTAS and in Ghana. The installation of the five remaining stations is on-going in each of the five ECA Subregional Offices (SROs) in Africa. A new proposal has been drafted, in conjunction with AU, to bring the AFREF project under the structures of the African Ministerial Council of Science and Technology.

MDG Mapper

A dynamic mapping tool was developed to enable at-a-glance visualization of the status of countries with regards to the achievement of MDG targets. With this tool (http://geoinfo.uneca.org/mdg/), one can navigate through the MDG goals, targets and over 80 indicators and generate maps dynamically showing the implementation status of countries at a base year, the most recent reference year for which data is available, estimated values for 2015, and hence off-target estimates at 2015. Site statistics (as of 31 December 2007) show that the site has been received 32718 page hits, with 5509 maps generated online since its launch in March 2007.

An "off-shoot" project has been initiated to develop a subnational geo-visualization and decision-support tool to observe variation of socio-economic indicators. This identifies for instance that some locales within a given country may require more support for educational programmes whereas other locales may require disproportionate investment in HIV or malaria prevention and treatment.

Development of the African Profile of the ISO 19115:2003 Geographic Information Metadata

With the increasing permeation of geo-spatial data and information products into the mainstream of the information economy, Technical Committee 211 (TC211) of the International Organization for Standardization (ISO) has been developing several standards related to geographic information. One of the released standards is ISO 19115 on geo-spatial metadata, which is one of the key components of spatial data infrastructures. However, these standards are very technical and difficult to understand and implement. Moreover, being global standards, only subsets of their provisions are pertinent to any country or region of the world. The usual approach is for countries or regions to develop profiles relevant to their needs. It is in this context that ECA and its partners, notably EIS Africa, are developing an African Profile of the ISO 19115:2003 Geographic Information Metadata.

A workshop was convened on the profile development during the fifth session of the Committee on Development Information (CODI). A draft African profile of the International Standard, ISO 19115:2003 Geographic Information Metadata was proposed, discussed and adopt by the Workshop. The workshop highlighted the key roles standards and metadata play in spatial data infrastructure (SDI), the relationship between data quality and metadata, assessment and certification, and digital rights management. Participants endorsed the development of the African profile of ISO

19115, to support the realisation of the objectives of the Mapping Africa for Africa (MAFA) programme.

Publication on the Role of Geo-Information in the Knowledge Economy

During the period under review, ECA progressed in adding the spatial dimension to socio-economic data that lead to deliver relevant information for building motivated policies and strategies decisions. It is now clear that geo-information is a powerful enabler, by allowing any user or decision maker to know what information resources are available, where they are and to be in a position to appraise them in relation to his needs.

The Commission has written a publication aims to discuss on the role of geo-information in the Knowledge Economy in Africa. The publication is an advisory tool on efficient measures for the building, maintenance and dissemination of regional development spatial database in support of economy growth in Africa.

Capacity- building

In the area of geo-information, ECA continued to develop in collaboration with the Centres of Excellence (RECTAS, RCMRD and AOCRS), training programmes in geo-information technologies and their applications to emergencies and development issues for resource technicians, managers and scientists. Over 100 practitioners have been empowered in various technical skills (SDI, remote sensing, GIS, database management, and Global Navigation Satellite Systems (GNSS).

Annex II: Science, technology and engineering for innovation and capacity-building in education and research

Promoting the application of science and technology for development

Appropriate use of science and technology is essential for achieving industrialization and sustainable development in Africa especially as globalization has brought about a more competitive environment. As part of its work to promote the application of S&T for Development, ECA has continued to provide support to member States including Nigeria, Lesotho, Ghana, Rwanda, South Africa and Uganda.

Under the development account, ECA is participating in the sustainable modernization of agriculture and rural transformation (SMART) initiative and is working closely with Africa Union, NEPAD and the AU Ministerial Council on Science and Technology (AMCOST) for the implementation of the AMCOST Consolidated Plan of Action (CPA). It participates actively as vice convenor and focal point in the activities of the UN S&T cluster for NEPAD. It serves also as focal point of the science, technology and the productive sectors of the EC-ESA and in active collaboration with S&T communities, notably the African Network of Scientific and Technological Institutions (ANSTI) and ICSU-Africa.

As part of the recent ECA repositioning, more emphasis is being put on strengthening member State capacity to harness science, technology and innovation potential for their socio-economic development. Consequently, to enhance ECA links with the African scientific community and build consensus on emerging science, technology and innovation issues from the continent's vantage point, a seven-month online discussion with more than 300 African scientists has been implemented.

The Report will be widely disseminated and will serve as the advisory tool on STI for development in member States. Along the same lines, ECA is also developing the “Access to Scientific Knowledge in Africa (ASKIA)” initiative to support and promote access to scientific knowledge by African scientists, decision-makers, students and researchers. It will mainly provide a mechanism for African scientists to tap into global scientific knowledge as well as indigenously owned and produced knowledge that both support economic and industrial growth.

Science with Africa Conference, 3-7 March 2008, Addis Ababa, Ethiopia

The United Nations Economic Commission for Africa (UNECA), the African Union Commission (AUC) and their partners organized a well-attended and a highly successful conference titled, “Science with Africa”, 3-7 March 2008 in Addis Ababa, Ethiopia.

The conference was attended by about 800 participants, mostly from African governments, academia, business community, media, civil society organizations and students. There was a good representation from the development partners and international organizations and companies dealing with science and technology (S&T). The main objective of the conference was to stage a platform for in-depth exploration of ways in which science, technology and innovation (STI) can be of service to the African population, especially on the importance of STI being an engine for accelerated economic growth and poverty reduction on the continent.

The conference featured 10 opening and keynote speeches, 24 plenary speeches and presentations in 5 plenary sessions, supported by 53 full- and short-paper presentations in nine breakout sessions focusing on topics/issues pertaining to Africa's socio-economic development including:

(a) STI policies;

(b) Energy, water, transport and infrastructure;

(c) Agriculture, health and life sciences, including development of guidelines for health research in Africa;

(d) Climate change;

(e) Intellectual Property Rights (IPR) patents and technology transfer;

(f) ICTs;

(g) STI capacity building, including international programmes for STI capacity building in Africa; and

(h) Generation and selection of R&D projects: R&D ideas factory and Science with Africa Marketplace.

Crosscutting issues such as, STI capacity building and climate change in Africa formed part of the lively discussions. Comprehensive recommendations related to each of the above theme were made. The full report attached in Annex I.

The conference overall recommended that ECA, in collaboration with the AUC and UNESCO, and under the framework of the AU/NEPAD S&T Consolidated Plan of Action, will constitute a Working Group to define the programme priorities for implementation of recommendations and the ideas of this conference. Implementation will be at the regional, subregional and country levels, within the established mandate of each institution.

ECA will continue to help to articulate science, technology and innovation systems for Africa's development and promote establishment of S&T parks and incubators in member States. Research and development activities will also be undertaken on selected emerging issues and topics of importance to member States. As part of its work to promote the application of S&T for Development, ECA will provide support to selected Centres of Excellence in the various subregions and facilitate networking among them.

Also as part of its work to promote the application of S&T for Development, ECA has continued to provide support to universities, research institutions and member States in various ICT education and research areas.