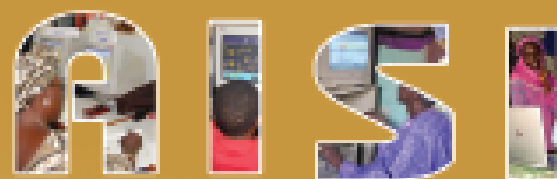


The African Information Society Initiative



A Decade's Perspective



United Nations
Economic Commission for Africa



Economic Commission for Africa

The African Information Society Initiative (AISI)

A decade's perspective



Ordering information

To order copies of *The African Information Society Initiative (AIS): A decade's perspective* by the Economic Commission for Africa, please contact:

Publications
Economic Commission for Africa
P.O. Box 3001
Addis Ababa, Ethiopia

Tel: +251 11 544-9900
Fax: +251 11 551-4416
E-mail: ecainfo@uneca.org
Web: www.uneca.org

© Economic Commission for Africa, 2008
Addis Ababa
Ethiopia

All rights reserved
First printing March 2008

Sales Number: E.08.II.K.2
ISBN: 978-92-1-125107-4

Material in this publication may be freely quoted or reprinted. Acknowledgement is requested, together with a copy of the publication.

Edited, designed and printed by the ECA Publications and Conference Management Section (PCMS).

Table of Contents

Acronyms and Abbreviations	v
Preface	ix
Chapter 1: The Origins of AISI	1
1.1 The Pan African Development Information System	1
1.2 Capacity Building for Electronic Communication in Africa.....	3
1.3 The Creation of the African Information Society Initiative (AISII)	5
1.4 The AISI Vision	8
1.5 AISI and progress in ICT development in the continent.....	9
1.6 The African Development Forum, 1999 (ADF '99)	10
Chapter 2: National Information and Communication Infrastructure plans (NICIs)	13
2.1 Overview	13
2.2 The NICI development process.....	15
2.3 Status of NICI Process	16
2.4 Links to national, regional and global development goals.....	19
2.5 Gender mainstreaming and NICI - Togo and Chad.....	21
2.6 stakeholders' participation.....	22
Chapter 3: Development of Indicators for Benchmarking and Measuring the Information Society: The Scan-ICT Initiative	25
3.1 Background	25
3.2 Scan-ICT Phase I.....	26
3.3 Results from the first phase	27
3.4 Scan-ICT Phase II	31
3.5 Scan-ICT Phase II Methodology Framework (Toolkit)	33
3.6 ICT Measurement: The International Dimension	35
Chapter 4: AISI and Regional Integration: Focus on UEMOA & ECOWAS	39
4.1 Regional Information Society Strategies.....	39
4.2 Critical areas for sub-regional and regional co-operation	41
4.3 Harmonization of the Legal Framework: Challenges within Union Economique et Monétaire Ouest Africaine (UEMOA) & Economic Community Of West African States (ECOWAS) ..	42
4.4 Towards a harmonized and favourable ICT legal framework in West Africa	46
4.5 Rationale for selecting the ECOWAS-UEMOA area	48
4.6 The Way Forward.....	50
Chapter 5: Information, Knowledge-Management and Capacity Building: The Role of the Information Technology Centre for Africa (ITCA).....	51
5.1 Overview	51
5.2 ITCA products and services	52

Chapter 6: Stakeholders, Outreach and Communication.....	59
6.1 Background	59
6.2 WSIS and Stakeholders Involvement in the Information Society	60
6.3 Stakeholders Role in the Information Society.....	61
6.4 Capacity Building Activities to Support Stakeholder and Network Participation.....	64
6.5 Outreach and Communication	64
6.6 Stakeholders Implementing AISI	71
6.7 Challenges to Effective Stakeholder Network Participation and Consolidation	81
Chapter 7: The Role of Academia in Information Society Development in Africa.....	85
7.1 Introduction	85
7.2 The Africa Learning Network (ALN) and AISI	85
7.3 VarsityNet Research Network	86
7.4 Academia Research Network (ARN)	91
Chapter 8: The World Summit on the Information Society (WSIS)	95
8.1 Background	95
8.2 AISI and the WSIS process	95
8.3 The First African Regional Preparatory Conference on the WSIS.....	95
8.4 The Second African Regional Preparatory Conference on the WSIS.....	96
8.5 AISI e-Discussions with Stakeholders.....	97
8.6 The African Regional Action Plan on the Knowledge Economy (ARAPKE).....	97
8.7 Implementing the WSIS Outcomes	98
Chapter 9: Partnerships for Promotion and Implementation of AISI	99
9.1 Background	99
9.2 Partnership for ICTs in Africa (PICTA)	100
9.3 ACACIA.....	101
9.4 UNSIA	101
9.5 UN-ICT Task Force.....	102
9.6 The Africa Node of the Global ePolicy Resource Network (e-PolNET)	103
9.7 Swiss Development Cooperation (SDC)/Global Knowledge Partnership	104
9.8 Finland	105
9.9 Partnership for Measuring ICTs for Development.....	106
Chapter 10: Lessons Learned and the Way Forward.....	107
10.1 AISI Overview	107
10.2 Addressing the Infrastructure Gap.....	109
10.3 The NICI Process.....	111
10.4 Stakeholders.....	112
10.5 The African Private Sector.....	114
10.6 Emerging Areas.....	115
10.7 Conclusions	118

Acronyms and Abbreviations

AAU	Addis Ababa University
Accacia	ICT for development in Africa programme of the IDRC in early 1990's
ACSIS	Africa Civil Society for the Information
ADB	African Development Bank
ADF	African Development Forum
AFRALTI	African Advanced Level Telecommunications Institute
AIF	African Internet Forum
AISI	African Information Society Initiative
ALN	Africa Learning Network
ANI	African Networking Initiative
APC	Association for Progressive Communications
ARAPKE	African Regional Action Plan on the Knowledge Economy
ARICEA	Association of Regulators of Information and Communication in Central and Eastern Africa
ARN	Academia Research Network
ASN	African Stakeholders Network
ASYCUDA	Automated System for Customs Data
ATPSnet	African Technology Policy Studies Network
AU	African Union
AYIN	African Youth and ICT4D Network
BBS	Bulletin Board Systems
BCEAO	Banque Centrale des Etats de l'Afrique de l'Ouest
BLC	Blended Learning Centre
CABECA	Capacity Building for Electronic Communication in Africa
CAF	Communication Assistance Foundation
CDS-ISIS	Computerized Documentation System for Information Systems (developed by UNESCO in 1985)
CEEAC	Communauté Economique des Etats d'Afrique Centrale
CEMAC	Central African Monetary and Economic Community
CePRC	Canadian e-Policy Resource Centre
CNRST	Centre National pour la Recherche Scientifique et Technique
CODI	Committee on Development Information
COMESA	Common Market for Eastern and Southern Africa
CRASA	Communications Regulators Association of Southern Africa
CSPS	Canadian School of Public Services
DEVSIS	Development Sciences Information System
DISD	Development Information Services Division
EAC	East African Community
EARPTO	Eastern African Regulators Postal and Telecommunications Organization
ECOWAS	Economic Community of West African States
EDI	Electronic Data Interchange
EMWA	Ethiopian Media Women Association

ePol-NET	ePolicy Resource Network
ESMT	L'Ecole Supérieur Multinationale de Telecommunication
EU	European Union
EUROSTAT	European Statistics Organization
FASDEV II	Second Forum on African Statistical Development
FOSS	Free and Open Source Software
GII	Global Information Infrastructure
GKP	Global Knowledge Partnership
GTZ	German Technical Cooperation
HITD	Harnessing Information Technology for Development
IDRC	(Canadian) International Development Research Centre
IFP	International Fellowships Programme
IG	Internet governance
IICD	International Institute for Communication and Development
IKE	Information and Knowledge Economy
ITCA	Information Technology Centre for Africa
ITU	International Telecommunication Union
IUCEA	Inter-University Council of East Africa
MDGs	Millennium Development Goals
MENA	Africa and Middle East and North Africa
MINISIS	Database management software deployed in minicomputers that was created and promoted for libraries and documentation centres by IDRC in the early 1970s
MSP	Multi-Stakeholders Partnership
NEPAD	New Partnership for African Development
NICIs	National Information and Communication Infrastructure plans
NORAD	Norwegian Agency for Development Co-operation
NSDI	National Spatial Data Infrastructures
NSO	National Statistical Office
OAU	Organization of African Unity
OECD	Organization for Economic Cooperation and Development
OHADA	Organisation pour l'Harmonisation en Afrique du Droit des Affaires (Organization for the Harmonization of Business Law in Africa)
OOSYNET	Out-of-School Youth Network
OSIWA	Open Society Initiative for Western Africa
OSS	Open Source Software
PADIS	Pan African Development Information System
PICTA	Partnership for ICTs in Africa
PPP	public/private partnership
PRSP	Poverty Reduction Strategy Papers
PTOs	post and telecommunication operators
RASCOM	Regional African Satellite Communication
RECs	Regional Economic Communities
RICI	Regional Information and Communication Infrastructure
SABC	South African Broadcasting Corporation
SADC	Southern African Development Community

SAMTRAN	Southern African Media Trainers Network
SATCC	Southern African Transport and Communications Commission
SDC	Swiss Agency for Development and Cooperation
SPA-II	Second Strategy for Poverty Alleviation
STAP	Short-term Action Plan
TRASA	Telecommunications Regulators' Association of Southern Africa
UEMOA	Union Economique et Monétaire Ouest Africaine (West African Economic and Monetary Union)
UICN	World Conservation Union
UIS	UNESCO Institute for Statistics
UMA	Union du Maghreb Arabe
UNCC	United Nations Conference Center
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCWA	United Nations Economic and Social Commission for Western Asia
UNICTRAL	United Nations Commission on International Trade Law
UNSIDA	United Nations Special Initiative for Africa
VarsityNet	AISI ALN African Universities Research Network
WATRA	West African Association of Regulators
WSIS	World Summit on the Information Society

Preface

The African Information Society Initiative (AISI), launched in 1996 is perhaps one of the most comprehensive regional ICT-for-development frameworks of its kind. Preceding the Geneva Action Plan of the World Summit on the Information Society (WSIS) of 2003 and the WSIS Tunis Commitments, 2005, AISI can be credited for being a reference point for an African digital vision and agenda in a globalized world. The AISI originated from a 1996 resolution (812 –XXXI) adopted by the ECA Conference of Ministers requesting the Commission to “*constitute a high level work group to develop an action plan on ICTs to accelerate socio-economic development in Africa*”. The Ministers were convinced that building Africa’s Information Society would help the continent to “*accelerate its development plans, stimulate growth and provide new opportunities in education, trade, health care, job creation and food security, helping African countries to leapfrog stages of development and raise their standards of living*”.

By and large, the first 10 years of AISI has been devoted to laying the necessary foundations and building blocks in building the Information Society in African countries. As evidence, three quarters of ECA’s 53 member States now have national e-strategies complimenting their development efforts as well as harnessing their ICT sectors to play a greater role in their economies, through the National Information and Communication Infrastructure (NICI) Plans and Strategies. Indeed to quote the former President of Mozambique, His Excellency Joachim Chissano¹: “*Ever since the African Information Society Initiative was launched in the mid-90s, a host of achievements have been recorded on the continent: thanks to the Project, intra-African traffic and network integration has improved; teledensity has risen significantly in recent times, telecentres and community multimedia centres are taking root and providing access to under-serviced areas*”. Although the AISI vision called for the “*formulation and development of NICI plans in every African country*”, the strategic objectives of the framework also called on African member States to improve communication services and create a continent-wide information and telecommunication network that will allow for fast and reliable communications to and from the continent.

This publication serves to assess the 10 years of the existence of AISI, which was adopted by ECA as its work programme, and highlights the opportunities and challenges of the implementation of this framework within the context of African development. Apart from assisting member States to formulate national strategies, other aspects of the implementation of the AISI include information and knowledge development, an outreach and communication programme, and networking and partnerships.

In the context of partnerships, special thanks must go to ECA’s partners, such as the Governments of Canada, Finland, Japan and the Republic of Korea, for their committed support towards realizing Africa’s digital agenda. Furthermore, the International Development Research Centre (IDRC), Bellanet International, la Francophonie, the European Commission and other sister United Nations agencies such as the International Telecommunications Union (ITU), the World Bank and the United Nations Educational, Scientific and Cultural Organization (UNESCO) have been key partners since the inception of the initiative. These partnerships have resulted in other AISI support initiatives such as the Partnership for ICT in Africa (PICTA), which is an informal group of actors working in the area of ICT4D in Africa. Other initiatives which resulted from the AISI also include, the IDRC-led ACACIA

¹ Quoted in WSIS Newsletter, December 2003

initiative (which included social investments in pilot multi-purpose community telecentres, school networking activities and accelerated ICT policy development initiatives in each ACACIA country, as well as considerable investments in evaluation and related research), SCAN-ICT (which is multi-partnership initiative that builds support for the phased development of a comprehensive African capability 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 Global Knowledge Partnership (GKP), and e-PolNet (a Canadian initiative which was set up to address policy issues, regulations and strategies in areas such as e-commerce, legal and policy frameworks, telecommunications policy and regulation, Internet Governance, e-government and connectivity strategies).

Given that the last 10 years of AISI has focused on laying the necessary ground work, the next decade will add to the foundation blocks by promoting ICTs in the economic and productive sectors, as well as promoting ICTs in the area of science. Currently, many African countries are working towards investing in infrastructure development to the use of applications in various socio-economic sectors. This stands such countries in good stead to take advantage of the emerging digital and knowledge economy, which offers some interesting prospects for harnessing ICTs for economic growth and accessing new revenue streams.. In all of this, ECA will be on hand to work closely with its member States and partners in assisting with the implementation of the next phase of AISI.

Finally, ECA would like to acknowledge the dedicated efforts of our consultants who provided a wide range of background inputs to the publication. Furthermore, the publication is a product of the ICT, Science and Technology Division (ISTD), written by Afework Temtime, Makane Faye, Sizo D. Mhlanga, Aida Opoku-Mensah, and ECA Consultants Prof. Abdoullah Cisse (Chapter 4, AISI and Regional Integration), Dr. Farouk Kamoun, Dr. Dawit Bekele, and Mr. Philip Ayoo (Chapter 7, AISI and Academia), Ms. Opportune Santos (Chapter 2, on ICTs and gender) with support from Thierry Amoussougbo.

The Origins of AISI

In the seventies, while the ECA, was providing support to its member States in strengthening their planning and socio-economic development strategies, it was felt that information needed to support these activities was not readily available. There was no mechanism on the continent to collect and share information to support planners, decision makers and researchers.

To address this gap, it was decided to establish a decentralized and cooperative regional information system, which would serve as a conduit for information and data, based on national, sub-regional and regional networks where all members would voluntarily contribute information. It was in this context that the Pan African Development Information System (PADIS)² was established by ECA in January 1980, supported by UNESCO, the United Nations Development Programme (UNDP) and the Canadian International Development Research Centre (IDRC).

1.1 The Pan African Development Information System

PADIS' overall objective was the promotion of development information management through-

out Africa. It operated an African development information system comprised of bibliographic, reference and statistical databases of African development information. While directed at planners, researchers, decision makers and development workers in Africa, PADIS' information services were available to the general public worldwide. The service also provided technical assistance in building capacities for the collection, storage and utilization of development information and promoted the improvement of African information infrastructures and the creation of databases in fields of importance to regional development, including the utilization of common norms and standards for information processing to ensure compatibility and to facilitate information exchange.

The primary aim of PADIS was to establish a centralized development information database at ECA and train member States' information spe-

Box 1: Architecture of PADIS

The PADIS System was composed of:
Bibliographic data bases
Statistical data bases
Referral data bases

The PADIS Network was composed of:
National Participating Centers
Institutional Participating Centres

The PADIS Coordinating Node was located at ECA in Addis Ababa, with distributed focal points in member States

² PADIS was renamed in 1987 to indicate that it focused on more than documentation and bibliographic databases, and would assess any information that supports development; previously it had been named the Pan African Documentation and Information System.

cialists to develop similar databases in their countries. These databases would issue periodical printed bulletins of new additions and forward their input to a central system, where it would be incorporated and availed to all users. The system was modelled on the IDRC's Development Sciences Information System (DEVSIS) model. The national focal points referred to as "*National Participating Centres*" numbered 40 by 1994, complemented by 15 African regional and sub-regional organizations referred to as "*Institutional Participating Centres*."

PADIS achievements were:

- The establishment of an ECA-based bibliographic database of development information;
- The establishment and maintenance of bibliographic databases in the development planning support structures of member States;
- The training of more than one hundred information specialists in the use of development information management software systems such as IDRC's MINISIS³² system and UNESCO's CDS-ISIS⁴³; and
- Awareness raising, through conferences, meetings, seminars and publications (notably a newsletter) on the importance of an accessible information base for development planning in Africa.

1.1.1 Challenges of the PADIS System

The major weakness of the system was the inability to ensure access to information for users who needed it in a timely manner. As conceptualized in the early 1980s, the system was intended to rely on satellite connections to transmit information between remote centres and the central point in Addis Ababa. The obvious difficulty was that the concept was 15-20 years ahead of technological realities on the African continent. Neither the producers of information nor its seekers had access to such connections during the system's major years of operation. Without the possibility of electronic information transfer, the exchange of information regressed to a dependence on unreliable postal services. The user had to relay a request for information and the response was received in the form of a bibliography. After receiving the bibliography, the user then contacted PADIS with a further request for delivery of the desired documents, which were limited to those available in the ECA central system. When the requested information eventually reached its destination, the requestor would have been forced to seek alternative sources or modify their final work product as a result of the delays.⁵⁴

Moreover, as designed, the PADIS System could not continue to meet the needs of users. Indeed throughout the region, researchers, development professionals, businesspersons and other citizens faced severe challenges of communicating amongst themselves and with their external colleagues. Working in isolation, their work suffered from restricted access to information because of the unavailability of technology and duplication of efforts during a period of rapid socio-economic, technological and cultural change.

3 MINISIS is a data base management software deployed in Mini computers that was created and promoted for libraries and documentation centres by IDRC in the early 1970s in over 60 countries in Africa, Asia, the Caribbean, Latin America and Canada.

4 CDS-ISIS: Computerized Documentation System for Information Systems: It is advanced non-numerical information storage and retrieval software developed by UNESCO in 1985. The software was originally based on the Mainframe version of CDS/ISIS, started in the late '60s.

5 Stories of postal delays in the African region are legion; ECA received in 2000 a returned PADIS newsletter that was sent to Niamey, Niger in 1991!

The diagram illustrates the PADIS-Net architecture. At the top is the NPC (National Processing Center), which connects to the PADIS (Program Administration and Documentation Information System) box. PADIS then branches into three main sections: CDS (Computerized Documentation Section), COS (Computer Operations Section), and MRS (Microfiche and Reproduction Section). The CDS section is connected to three laptop icons, which are further connected to a central hub. The COS section is connected to a checkered box, which is connected to a central hub. The MRS section is connected to two database cylinders and a stack of microfiche. A dashed line connects the MRS section to a stack of microfiche. A solid line connects the central hub to a box labeled 'NETWORK INTERCONNECTION'.

- NPC operational
- COS computer center operational
- PADIS-NET interconnection established

NPC=National Processing Center
CDS=Computerized Documentation Section
COS=Computer Operations Section
MRS=Microfiche and Reproduction Section

1.2 Capacity Building for Electronic Communication in Africa

The CABECA project was designed to address regional challenges that had isolated Africa from international computer-based networking. Some of these challenges included:

- 3

- The world's lowest resource allocation for informatics, resulting in minimal access to technology and low rates of technological proficiency throughout the region;
- High telecommunication costs, especially for international calls;
- Tariff barriers to data transfer; and
- Scarcity of Africa-based specialists to train peers in desired technical skills.

The CABECA project was successful in complementing the activities of PADIS and making them easily accessible to users. Indeed, before CABECA was established, the PADIS system focused on the promotion of development information management, especially through capacity building activities such as training of information specialists on data collection, creation and the management of data bases, which unfortunately did not communicate with each other due to constraints related to telecommunications services and connectivity. The CABECA project therefore advanced through the introduction of electronic communications to enable on-line access and exchange of information among the various PADIS focal points and beyond.

The achievements of the CABECA project were:

- Training of more than one hundred systems operators in selected African countries who eventually became trainers and troubleshooters for other network operators and computer technicians on the continent;
- Provision of network equipment for the national and regional nodes, including electronic mail and Bulletin Board Systems (BBS) thus enabling inexpensive and easy access to local and international information services on systems run by local operators and sustained through revenue collected from users;
- Continent-wide promotion of information exchange via electronic mail worldwide and the use of on-line e-mail discussion lists, BBS, file transfer and databases, as well as Internet usage; and
- Awareness-raising at all levels, including that of policymakers and users on the relevance and needs for electronic communications and promotion of email and Internet usage.

1.2.1 Challenges of CABECA

From the on-set, telecommunication operators, ministries of communication and regulators were not participants in the CABECA project, and this had affected the expansion and sustainability of the project. Even though CABECA achieved its objectives by promoting use of electronic communications, building capacity of systems operators and raising awareness at all levels, its sustainability was jeopardized by intervention of strong state-owned post and telecommunication operators (PTOs). In addition, the infrastructure in the African context was prone to severe electrical and other technical breakdowns of CABECA servers, which eventually disrupted communications for several hours and days in some countries, putting pressure on the system itself. As a result, it could not compete with emerging commercial service providers of full Internet access supported by strong PTOs.

Both the PADIS and CABECA initiatives paved the way for the entry of the continent into the information era, through better information management and access to online databases and the Internet. Consequently, ECA decided to integrate the activities of the project into the regular, Development In-

formation Services Division (DISD) work programme. The Division was mandated to implement the ECA sub-programme on “*Harnessing Information for Development*” which embodied the basic PADIS and CABECA objectives to promote infrastructure development, as well as the collection, management and dissemination of information in order to enhance development in member States. This was re-emphasized when DISD decided to use the African Information Society Initiative (AISII) as the cornerstone of its work programme.

1.3 The Creation of the African Information Society Initiative (AISII)

The African Regional Symposium on Telematics for Development held in Addis Ababa from 3-7 April 1995, attended by over 500 participants and organized by ECA, the International Telecommunication Union (ITU), UNESCO, IDRC Canada and Bellanet International, was a watershed in raising the awareness of Africa’s state of preparedness and interest in harnessing information technology for development.

The Symposium resulted in an impetus for the movement to build Internet connectivity in Africa and was followed in May 1995 by the adoption of Resolution 795 (XXX) “*Building Africa’s Information Highway*” by the 21st meeting of the Conference of African Ministers of Planning and Social and Economic Development. The resolution called on the ECA Executive Secretary to appoint a high-level group of African experts to draft a plan of action for Information and Communication Technologies (ICTs).

Box 2: Resolution 812 (XXXI): Implementation of the African Information Society Initiative (AISI)

Adopted by the 22nd meeting of the ECA Conference of Ministers, May 1996, Resolution 812 (XXXI) States:

The Conference of Ministers, Recalling resolution 795 (XXX) on building Africa's information highway which requested the Executive Secretary of the Economic Commission for Africa to constitute a high level-working group to develop an action plan on information and communication technologies to accelerate socioeconomic development in African countries;

Appreciative of the proposal contained in document E/ECA/CM22.6 related to the building of Africa's Information Society;

Convinced that building Africa's Information Society will help Africa to accelerate its development plans, stimulate growth and provide new opportunities in education, trade, healthcare, job creation and food security, helping African countries to leapfrog stages of development and raise their standards of living;

Sharing the vision of an African Information Society which calls for the building of information and decision-support systems to enhance policy formulation, fostering a new generation of Africans capable of using information and communication technologies, building African information resources and linking Africa regionally and globally to the information age;

1. Expresses its thanks to the high-level working group for developing the AISI action framework;
2. Adopts the principle of the African Information Society Initiative as an action framework for building Africa's Information Society and calls upon Member States to incorporate the African Information Society Initiative in their national development plans according to national needs and priorities;
3. Calls upon the ECA, in consultation with Member States, along with the International Telecommunication Union, UNESCO, UNCTAD, the World Bank, and international and bilateral partners in the harnessing of information for development priority areas of the United Nations System-Wide Special Initiative on Africa to use the African Information Society Initiative as a guiding framework;
4. Urges Member States to utilize the capacities and experiences of national, sub-regional and regional African centers of excellence in the enrichment and implementation of the African Information Society Initiative;
5. Requests the Executive Secretary of the Commission to:
 - Take action, in particular mobilizing funding and technical assistance, in cooperation with Member States, regional organizations such as the Pan-African Telecommunications Union and the Regional African Satellite Communication System, non-governmental organizations, the private sector, bilateral and international partners, to realize the goals of the African Information Society Initiative;
 - Incorporate the action framework into the secretariat's work programme under the new strategic directions of the Commission
 - programme area on harnessing information for development;
 - Set up a regional mechanism to assist in development, follow-up and coordination of the implementation of African Information Society Initiative programmes and projects;
 - To establish a gender-balanced African technical committee to advise on programmes and projects and to evaluate results;
6. Requests the Executive Secretary of the Commission to report to the next Conference of Ministers on the progress in implementing this resolution.

Adopted at Addis Ababa
May 1996

The High Level Working Group was composed of 9 African experts and two international experts from the Global Information Infrastructure (GII), USA. The Africans included two experts at senior policy-making level, a Speaker of Parliament, a regulator, three experts from the research and academia community and two experts from the private sector. After a year of activity, the Working Group presented a plan of action to the 22nd meeting of the Conference of Ministers who adopted it in a resolution known as the “*African Information Society Initiative (AISI)*.”

Box 3: Momar Aly Ndiaye of Senegal, member of the High level-working group on AISI:

"AISI has raised awareness of African decision makers at all levels. Through the various international, regional and national fora and consultations, AISI has provided support to African stakeholders, built capacity and facilitated development of ICT policies and plans in most African countries "

AISI was adopted the same year by the Summit of Heads of State and Government of the Organization of African Unity and supported by the then G7+1 as Africa's major ICT initiative in its 1997 Denver Summit. It is a mission statement for Africa's quest to narrow the digital divide with the rest of the world, while accelerating the continent's entry into the information age.

Box 4

"I feel proud to have been involved in this great movement - from darkness of less than 1% penetration in 1996 to the pervasive ICT around me today.. AISI provided a wholesome approach to the development and exploitation of ICT. All other strategies I have come across focus on a niche in the ICT sector and are not comprehensive. The greatest strength was a manifestation that ICT is not the end but is only a means to better life for African citizens"

Muriuki Mureithi of Kenya, member of the High level-working group on AISI

AISI is the first comprehensive effort by African governments to bring their countries into the information and knowledge era. The Summit of the Organization of African Unity (OAU) held in July 1996 in Yaounde adopted a Declaration on AISI entitled "Building Partnerships for the African Information & Communication Initiative".

Box 5: Heads of State Summit of the Organisation of African Unity

Yaounde, Cameroon, 8-10 July 1996

Declaration on AISI

Building Partnership for the African Information & Communication Initiative:

We, the undersigned heads of government, representing all the African people solemnly agree to create a continent wide African Information & Communication Initiative and call on all friends of Africa to help build the African Information Society.

Observing the direct links between quality of life and information richness, and noting with satisfaction the already substantial interest of some African countries, as well as the support of the international community world wide, but observing the still massive under investment in the needed resources in Africa, it is requested that all possible parties form a strategic alliance to reduce the world largest examples of information inequalities.

Only by a combined effort involving the world's public, governments, media, NGOs, international donors and the business sector, will it be possible to address the problems which eliminate the potential for planetary unification through the emerging information infrastructures by excluding Africa's people citizenship in the global village.

As the top decision makers in African government, we pledge our utmost support for the continent's African Ministers of Planning in their efforts to establish plans for the development of National Information Infrastructures and expect that all other institutions around the world co-operate with them in formulating a strategy for building Africa's Information Society.

Since its adoption, AISI has formed the cornerstone of ECA's work to promote information technology as an engine for Africa's development. The issue of ICT's became an integral part of the Commission's work when it commenced the implementation of the AISI.

1.4 The AISI Vision

The AISI proposes that Africa should build, by the year 2010, an information society in which every man, woman, child, village, public and private sector office has secure access to information and knowledge through the use of computers and the communication media.

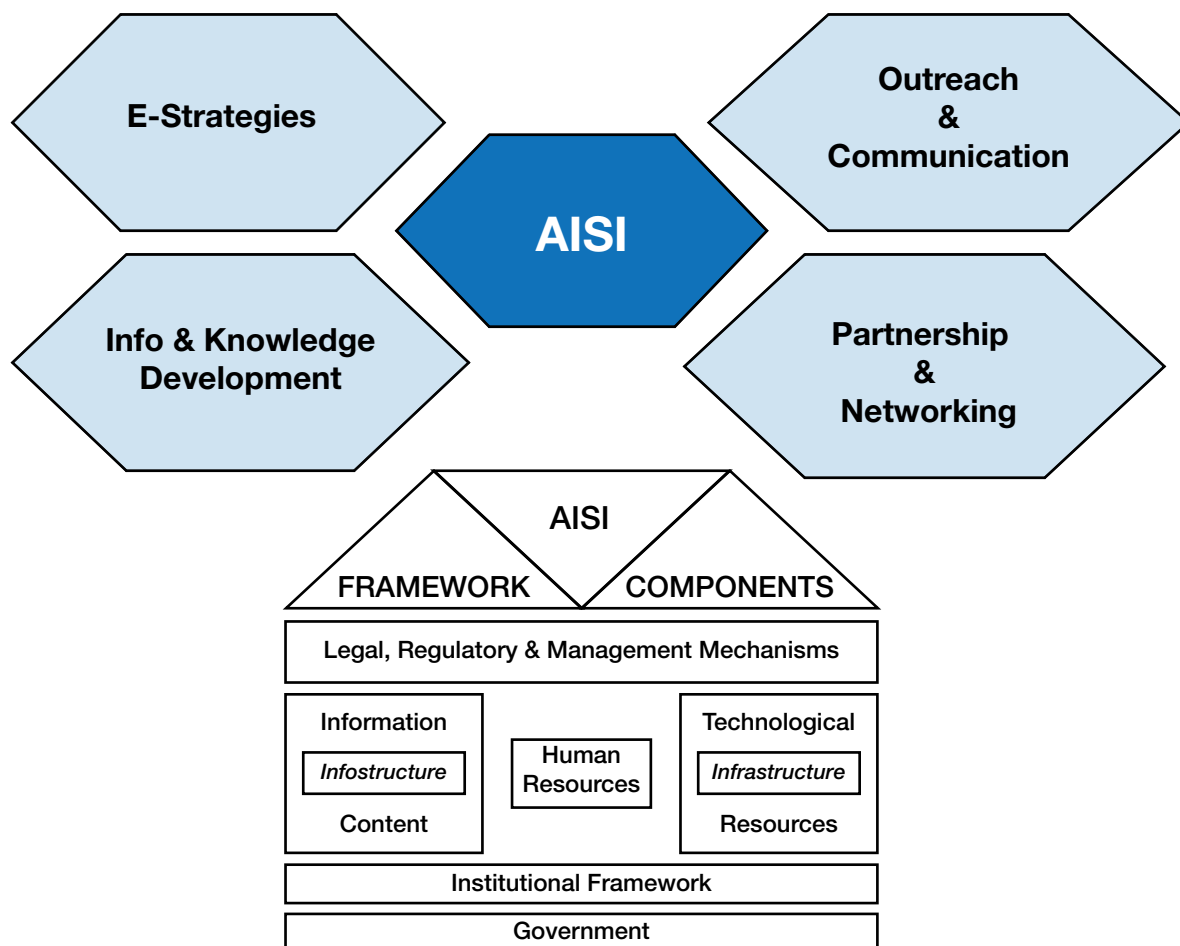
This vision presents an ideal opportunity for development and encourages African nations to utilize and use ICTs in order to offer to citizens the resources necessary to be competitive in the Millennium and beyond.

The AISI foundation lies on the following inter-linked elements:

- An appropriate framework for the sustainable development of the Information Society in Africa, presented in a “a holistic set of decisions, directives, laws, rules and other mechanisms aimed at guiding and shaping ICT production, acquisition and utilization” - a stable, predictable legislative and regulatory environment is a precondition for investment in the information and communications sector;
- The physical infrastructure, which caters for reliable network and telecommunication services - AISI advocates for an improved interconnection in the region as well as the establishment of links with the international telecommunication networks;
- Institutions dealing with coordination and implementation - these include policy making organs, regulatory bodies and coordinating bodies;
- Human resources development, which is the cornerstone for the sustainability of the Information Society - AISI advocates for technological and managerial capacity building through education and training so that Africans will be well prepared to participate in the knowledge era and benefit from it; and
- The infostructure, if suitable and relevant will promote access to the majority of the population, including the widely dispersed rural communities and the disenfranchised groups - AISI has identified key applications and services to operationalize the Information Society in the region.

The above AISI components are described below in fig. 2:

Fig. 2: AISI Focus Areas



1.5. AISI and progress in ICT development in the continent

AISI has set 2010 as the target to make the continent “realize a sustainable Information Society” where everyone has access to information and knowledge. Some of the targets have been achieved and the rapid development of the ICT sector in Africa in the past 10 years can be attributed to the AISI.

The initiative was implemented at national, sub-regional, regional and international levels with the involvement of African policymakers and other stakeholders. The various chapters of this publication discuss issues related to AISI implementation in the continent.

Box 6

“Ever since the African Information Society Initiative was launched in the mid-90s, a host of achievements have been recorded on the continent: thanks to the Project, intra-African traffic and network integration has improved; teledensity has risen significantly in recent times, telecentres and community multimedia centres are taking root and providing access to under-served areas”

President Chisano of Mozambique, Chairperson of the African Union stated in the WSIS Newsletter of Dec 2003

1.6 The African Development Forum, 1999 (ADF '99)

The issue of globalization and the information age was selected as the theme for the inaugural ADF because of the importance of defining African-owned and African-led strategies for joining the global information economy and the urgent need to bring stakeholders around the AISI vision and objectives to chart the way for the sustained development of the Information Society in Africa. It was in this context therefore that the first African Development Forum (ADF '99) was held from 24-28 October 1999 under the theme “The Challenge to Africa of Globalization and the Information Age.”

Box 7: ADF '99 Themes

Globalization and the information economy: challenges and opportunities for Africa
Strengthening Africa's information infrastructure
Information and communication technologies for improved governance
Democratizing access to the information society

Follow up to ADF'99

Applications to support the educational process and meet the needs of Africa's youth
Applications in support of the delivery of health care
Opportunities for business and trade
Creating the enabling policy environment.

The major goal of ADF'99 was to develop and support African initiatives that were fundamental to the shaping of the African Information Age. ADF' 99 provided the first occasion for a wide range of African policymakers and practitioners to come together as a group to assess the opportunities, confront the challenges and develop a plan of action for Africa in the Information Age.

The Forum was the culmination of more than three years of activities to build an African Information Society and an occasion to set future directions for the AISI.

Attended by over 900 participants from government, private sector, civil society, academia, media and bilateral and multilateral organizations represented by community activists, technical experts, national and international policy makers, private entrepreneurs and Heads of State, the Forum was unique because for the first time, it demonstrated how much was being undertaken in Africa by Africans, in the harnessing of ICTs for development. A number of concrete initiatives and projects emerged from ADF 99, many of which constituted the basis for a follow up of the ADF and the updated vision of AISI.

By contributing to the implementation of AISI, ADF '99 recommended a strategy to accelerate African development through the increased use of ICT's.

- ICTs are an enabling tool with a multiplier effect, which can cut costs, improve quality and speed delivery of basic infrastructure and services;
- ICTs offer opportunities for rapid economic growth which will ultimately increase resources available to meet the numerous demands on government treasures; and
- ICTs have the potential to fundamentally transform government operations, improving the ability of marginalized groups to participate across the spectrum - from the local grassroots

level, to national, regional and global forums, which contain insufficient representation from the South.

The major outcome of ADF '99 was the unanimous acceptance of the AISI guidelines related to the development of National Information and Communications Infrastructure (NICI) plans, which are at the core of the implementation of the AISI.

Accordingly ADF '99 was a platform for raising the awareness of the NICI development process and also to showcase NICI development and implementation in several African countries, which is discussed in Chapter 2.

AISI and National Information and Communication Infrastructure plans (NICIs)

2.1 Overview

Driven by critical development imperatives, the AISI provides a framework for the development and implementation of national information and communication infrastructure plans in all African countries and the pursuit of priority strategies, programmes and projects which can assist in the building of a sustainable Information Society. A key component of the AISI is the development of national e-strategies, or the NICI plans, policies and strategies aiming principally at assisting countries to deploy, harness and exploit ICTs for development.

The pervasive nature of ICT's means that the impact is not only confined to the communications and information sectors but to virtually

all sectors of society. NICI plans and strategies therefore need to reflect overall development priorities, redefine sectoral policies and support the introduction of new regulatory frameworks so as to improve the efficiency and to mobilise resources for building national information and communication infrastructure. National e-strategies will only result in a desirable impact on the socio-economic development process if integrated into the overall developmental objectives, priorities and programmes of the country.

The AISI also defines role of government as being that of providing a vision, a strategy and an enabling environment to develop national information and communication infrastructure and to ensure that all sectors of society benefit from it. To fulfill its role in achieving these objectives, the AISI recommends that each African govern-

Box 8: The African Information Society Initiative (AISII)

The proposed initiative calls for the formulation and development of a national information and communication infrastructure (NICI) plan in every African country. This plan should be driven by national development challenges such as debt management, food security, health, education, population, unemployment, job creation, industrialization, land reclamation, water, tourism, trade, etc. The emphasis is on the need to support decision-making at all levels and provide information and communication infrastructure for government, business and society to enlighten the process of development. Secondly, the initiative proposes cooperation, linkage and partnership between African countries to share the success of accumulated implementation experiences and stimulate regional development in various information and communication fields.

Resolution 812 (XXXI): Implementation of the African Information Society Initiative (AISII) (May 1996)

ment establishes or assigns a lead national agency to be responsible for broad-based coordination and collaboration within government as well as with other sectors. This role also includes the development of national policies and plans for adopting ICT's within the government to improve the effectiveness of government service delivery. To ensure the smooth implementation of the national information and communication infrastructure in African countries, governments also need to address the legal and regulatory environment, which currently constrains the use of new technologies. This would require modification of laws and regulations in different areas such as communication, intellectual property, privacy and free information flow.

With the launching of the AISI, ECA took the lead with respect to the formulation of national e-strategies. As described in Chapter 1, the first ADF '99 with the theme: "The Challenges of Globalization and the Information Age", catalysed the development and formulation of national strategies in Africa and by so doing, consolidated the concept ICT for Development.

The ADF'99 inspired the launching of NICI policies and plans in several Africa countries. The ADF'99 was held at a time when twenty-two countries⁶⁶ had commenced developing their NICI plans and policies with some of them tabling their finalized documents at the Forum. The impact of the ADF'99 is reflected in the NICI documents of countries that commenced/finalized their NICI policies and plans development process following the Forum. The development of NICIs is an ongoing process through which stakeholder consensus on progress towards the African Information Society can be sustained.

Box 9: The Way Forward to a people-centred African Information Society

The fundament of the African Information Society is the development and consolidation of National Information and Communication Infrastructure policies and plans (NICI), which will be a cornerstone of Africa's response to the challenges of globalization. It is the national level which provides the platform for making strategic choices as to the most appropriate modalities for decisions on, for example, regulation, infrastructural priorities and service distribution. Without well-equipped and properly functioning NICIs at the national level, which can also benefit from mutual contacts, there can be no African Information Society.

Annex 1 ADF 99": "The Challenge to Africa of Globalization and the Information Age".

The importance of e-strategies in advancing the Information Society was further re-affirmed during the World Summit on the Information Society (WSIS) in Geneva, 2003⁷⁷. The resultant WSIS Plan of Action⁸⁸ emphasized the importance of establishing "*a trustworthy, transparent and non-discriminatory legal, regulatory and policy environment*", for which "*Governments should foster a supportive, transparent, pro-competitive and predictable policy, legal and regulatory framework, which provides the appropriate incentives to investment and community development in the Information Society. Governments have a leading role in developing and implementing comprehensive, forward looking and sustainable national e-strategies. The private sector and civil society, in dialogue with governments, have an important consultative role to play in devising national e-strategies.*"

6 Benin, Burkina Faso, Burundi, Cape Verde, Gabon, Ghana, Guinea, Ethiopia, Mali, Malawi, Mauritania, Morocco, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sudan, South Africa, Tanzania, Tunisia, Uganda

7 www.itu.int/whsis/

8 http://www.itu.int/dms_pub/itu-s/md/03/whsis/doc/S03-WSIS-DOC-0005!!PDF-E.pdf

On the action lines, the Plan of Action called for the “*development of national e-strategies, including the necessary human capacity building, should be encouraged by all countries by 2005, taking into account different national circumstances.*”

2.2 The NICI development process

The NICI development process cycle is summarized below:

Phase 1: The first phase of the methodology concentrates on the development of the *Framework Document*. The Framework Document, among other things provides an analytical basis for the development of the subsequent Policy document and the Plan. This is achieved through a baseline study, which establishes benchmarks so that subsequent monitoring and evaluation can assess the effects of identified programmes on the target population.

The study underlying the development of the Framework is based on the review and analysis of the current national socio-economic development frameworks, policies, strategies and provisions as well as the ICT development, deployment and exploitation in a country. The premise is that it specifies and defines the general problem and policy areas as well identifying specific policy issues and orientations required to guide the Policy development process and the subsequent Plan.

Box 10: The NICI cycle

- Need Assessment;
- Sensitisation and high level policy workshop; and
- Preparation of NICI plans which involves:
 - (i) Identification and selection of programmes, projects and initiatives; and
 - (ii) Development of programme profiles for each of the identified programmes, projects and initiatives.
 - Validation workshop (including more sensitization);
 - Preparation of policy including:
 - (i) Discussion on policy coordination and implementation organs; and
 - (ii) Policy implementation
 - Resource mobilization;
 - Resource Deployment;
 - NICI programme implementation and monitoring; and
 - NICI programme evaluation.

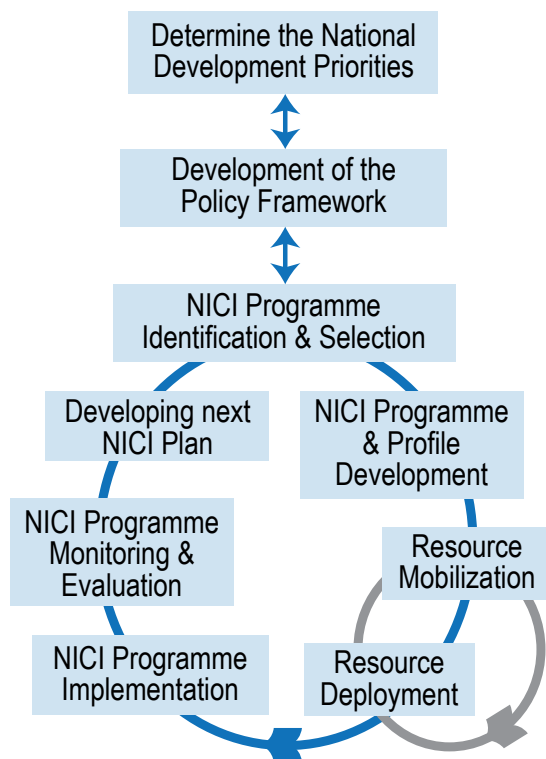
Phase 2: This phase concentrates on the development of the *Policy Document*, which provides details of the government’s policy commitments in relation to what needs to be done through the exploitation and development of ICTs.

Phase 3: This phase of the methodology is devoted to the development of the first Plan guided by the government’s policy commitments detailed in the Policy Document. This Plan, the first of series of rolling Plans serves as a cornerstone of the government’s socio-economic development plan over a specific time frame. The task will be to develop an *integrated ICT and socio-economic development Plan* with the capability to support the development of the necessary economic base and environment for accelerat-

ing the country's development towards an information rich and knowledge base economy and society. Within the NICI cycle, a number of plans can be developed and implemented.

Phase 4: This final phase involves the actual implementation of the specific programmes in the Plan. Once the Plan is developed and implemented, progress is monitored and evaluated on a regular basis. The monitoring and evaluation exercise will be based on the analysis of relevant indicators to assess progress towards Information Society development and socio-economic impact.

Fig. 3: The NICI cycle



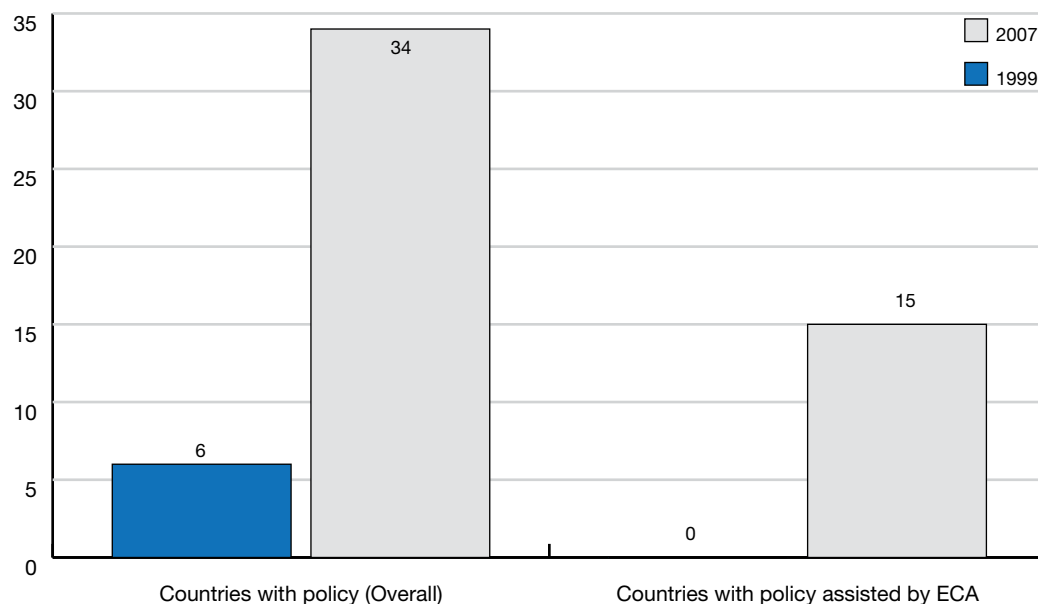
2.3 Status of NICI Process

Prior to the AISI, only six countries had developed ICT policies and it was not until ECA began implementing its work programme (and the run up to ADF '99) that the number of countries increased. The thirteen countries that had either started the development of their NICI policy with ECA's assistance or were working with the IDRC under the AISI framework in 1999 were Benin, Burkina Faso, Burundi, Cape Verde, Ghana, Guinea, Ethiopia, Mali, Malawi, Namibia, Nigeria, Rwanda, Tanzania and Uganda.

The ECA has supported over 50 per cent of its member states in developing their national e-strategies and the current policy status in Africa is as follows:

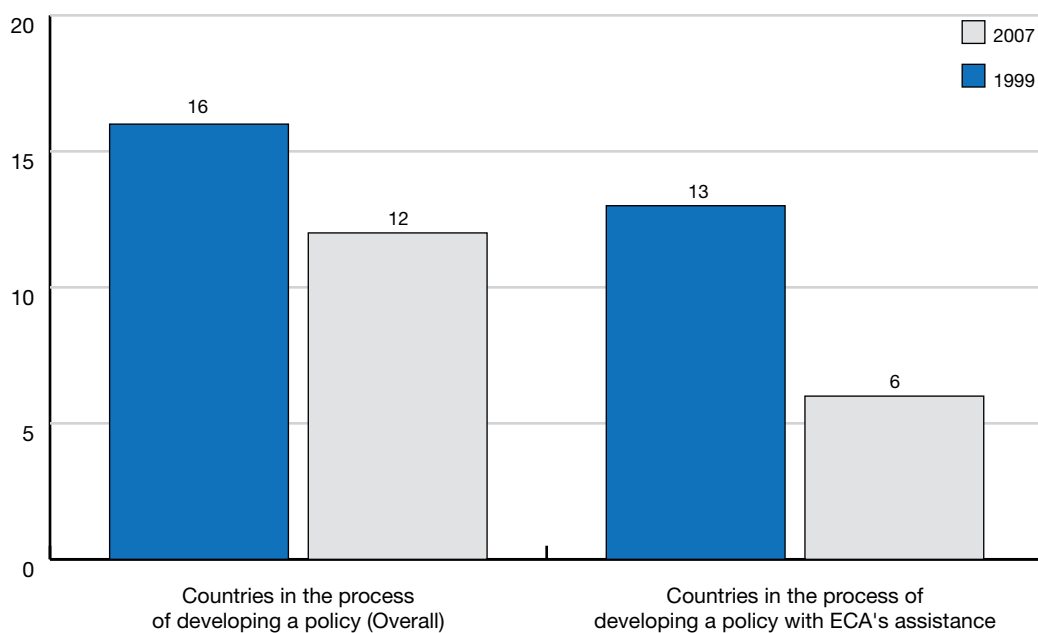
- Countries with an ICT policy (33);
- Countries in the process of developing an ICT policy (13); and
- Countries which had not initiated the ICT policy development process (8).

Fig. 4: Status of NICI Policy Development (1999-2007)



Source: NICIs: Best Practices and Lessons Learnt, UNECA, 2007

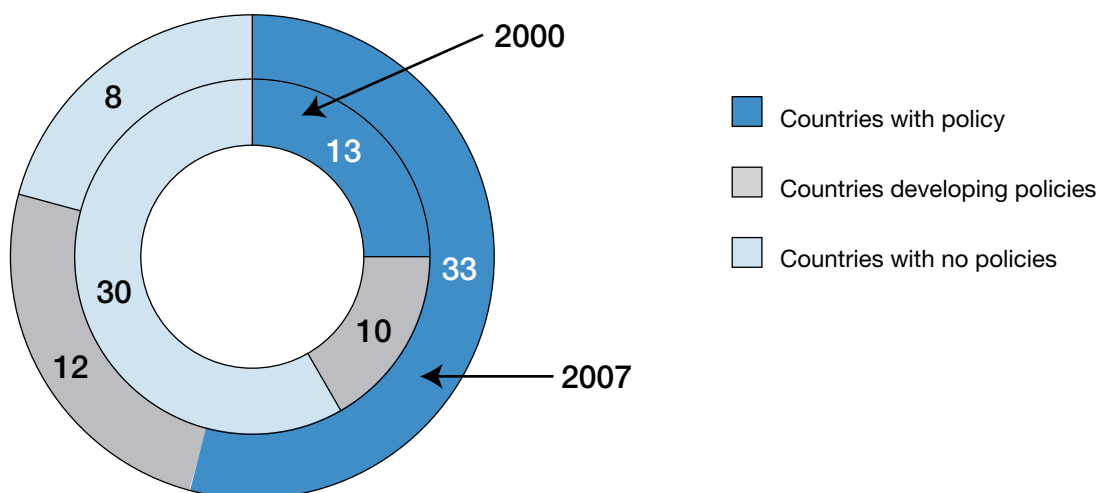
Fig. 5: Status of NICI Policy Development (1999-2007)



Source: NICIs: Best Practices and Lessons Learnt, UNECA, 2007

A majority of the African countries engaged in the NICI process were implementing elements of the NICI methodology. Whilst most of these countries were in the first NICI cycle, some were in the policy phase with a few in the first NICI plan implementation phase. Rwanda is the only sub-Saharan Africa country currently in its second NICI cycle.

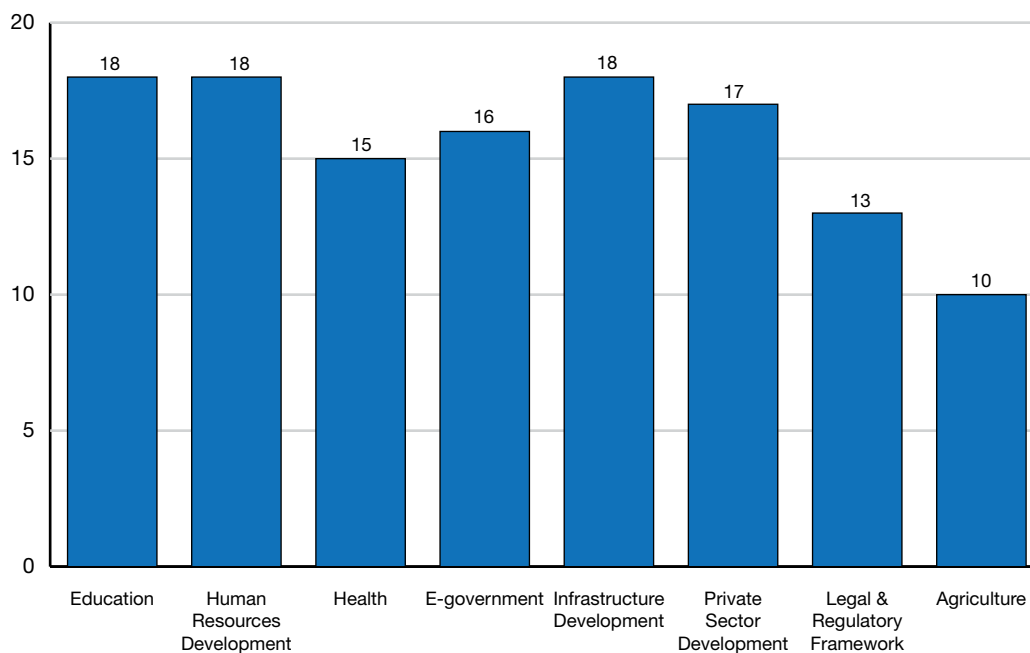
Fig. 6: ICT Policy Status



Source: NICIs: Best Practices and Lessons Learnt, UNECA, 2007

The formulation of NICI plans and strategies is based on national needs and development priorities as determined by all the relevant stakeholders of a country. Although the e-readiness status of African countries is varied, there are common challenges faced by a majority of them and this has led to the identification of similar policy priority areas as being critical for the implementation of NICI plans as indicated in Fig. 7.

Fig. 7 Policy Focus Areas (Compiled from ICT policies and plans of 33 countries)



Source: NICIs: Best Practices and Lessons Learnt, UNECA, 2007

2.4 Links to national, regional and global development goals

NICI processes in some countries are based on initiatives aimed at reducing poverty such as the Millennium Development Goals (MDG's) as well as other efforts such as the Poverty Reduction Strategy Papers (PRSP). The G8 DOT Force (2001)⁹ stated that, *"Efforts to increase access to ICTs should be rooted in a broader strategy to combat poverty."* The application of ICTs in the absence of a development strategy that ensures effective use of them would inevitably result in sub-optimal outcomes. Directly addressing the needs of the poor and most marginalized and assisting them to apply their knowledge is key to combating poverty and should be incorporated in poverty alleviation ICT approaches.

Some of the conclusions of a Department for International Development (DFID)¹⁰ study on ICT's for poverty reduction were that:

- Information and communication aspects of poverty and appropriate use of ICTs should be mainstreamed in the development process;
- Information and communication issues should be addressed in national poverty reduction strategies;
- Focus should be placed on creating the right enabling environment for the spread of ICTs, entrepreneurship and innovation, and the free flow of information; and
- The poorest should be assisted in addressing their information and communication needs.

The NICI policy and plans are therefore not only a means to achieve the PRSP goals, but also a way to sustain the ICT led poverty alleviation activities through the PRSP funding and planning process of the country. Processes in the Gambia and Malawi are described below.

2.4.1 The NICI process in the Gambia

The ECA supported the Government of the Gambia in developing a NICI policy and plan¹¹ (2005) geared towards the country's Second Strategy for Poverty Alleviation (SPA-II)¹². The Vision 2020 for the Gambia envisages that the country will be transformed into a middle-income country by that year. The long-term growth strategy of Vision 2020 is based on four strategic development areas, namely:

- Accelerating private sector development;
- Restructuring economic management;
- Developing the human capital base; and
- Institutionalising decentralised and democratic participatory government structures, processes and systems.

The PRSP priorities focus on "attaining a high level of economic growth with a special emphasis on the critical areas of private sector development, agriculture, natural resources, tourism, trade and industry

9 G8 DOT Force, *Digital Opportunities for All: Meeting the Challenge*, Report of the Digital Opportunity Task Force, 11 May 2001, http://www.dotforce.org/reports/DOT_Force_Report_V_5.0h.pdf.

10 Marker, McNamara and Wallace (2002): The significance of information and communication technologies for reducing poverty - www.dfid.gov.uk

11 <http://www.uneca.org/disd/ict/>

12 *The Gambia: Second Strategy for Poverty Alleviation (SPA- II)*

and a timely attainment of the Millennium Development Goals (MDGs). The four strategic goals and respective issues included:

- **Enhancing the Productive Capacity of the Poor**
 - Promoting labour-saving devices for women;
 - Providing access to credit; and
 - Re-organising agricultural R&D to encourage labour intensive agriculture and development of small ruminants.
- **Enhancing Access to and the Performance of Social Services**
 - Expanding access to basic social services in rural areas;
 - Delivering responsive social programs to the poor; and
 - Enhancing sustainability and quality of social services.
- **Local Level Capacity Building**
 - A political and legislative framework for decentralisation; and
 - Empowerment of local government authorities to assume decentralised responsibilities.
- **Promoting Participatory Communications Processes**
 - Enhancing participation beyond consultation;
 - Addressing gender at national and local levels; and
 - Institutionalising dialogue between government, civil society and donors.

2.4.2 The NICI process in Malawi

The objective of the ICT-led socio-economic development vision for Malawi is to contribute to the attainment of the aspirations of the Vision 2020 by improving the quality of life of the people of Malawi by enriching their social, economic and cultural well-being through the modernization of the economy and society using ICTs as an engine for accelerated sustainable development and economic growth, social and cultural development, national prosperity and global competitiveness. The Government of Malawi recognized that the NICI policy should form an integral part of the nation's overall vision for social and economic development and also take into account the developmental challenges facing the country, measured in terms the key social and economic indicators.

The Malawi PRSP has its roots in the nation's overall vision as defined in the Vision 2020. It is designed to translate the aspirations of the vision into operational strategies that are prioritized for implementation within a short to medium term time frame. The overall goal of the PRSP is to achieve sustainable poverty reduction through social, economic and political empowerment of the poor through four pillars namely:

- Sustainable pro-poor economic development;
- Human capital development;
- Improving the quality of life for the most vulnerable; and
- Good governance, political will and mindset.

The cross cutting issues were identified as HIV/AIDS, gender, environment and ICT, Science and Technology.

The NICI policy was therefore set within the wider socio-economic development objectives and aspirations of the nation taking into account the provisions of a number of crucial socio-economic development policy frameworks including, the Vision 2020, the Malawian Poverty Reduction Strategy Paper (PRSP), the Science and Technology (S&T) Policy and other socio-economic development frameworks of Malawi. The policy was strategically targeted at the development of the ICT sector and industry and on the use of ICTs as a broad-base enabler of developmental goals, with emphasis of the development, deployment and exploitation of ICTs to aid the development of all other sectors of the economy.

The ultimate goal of the Policy is to accelerate Malawi's development process with the potential to transform the country into a middle income, information-rich, knowledge-based and technology driven economy and society by pursuing an ICT-led development policy and strategies within the context of achieving the wider aspirations of the Vision 2020.

2.5 Gender mainstreaming and NICI - Chad and Togo

The gender dimension had been a missing feature in a majority of formulated NICI policies and plans. To ensure that gender mainstreaming was taken into consideration in the development of policies, ECA, in its support for countries in the formulation of NICI plans, encouraged Chad and Togo to integrate gender mainstreaming in their respective NICI plans. The proposal to mainstream gender in the Chad and Togo NICI processes constituted an opportunity to showcase gender mainstreaming as a lesson for other processes. Women in these countries were increasingly using mobile phones as a convenient means of communication and for business despite the relatively high costs. The extensive use of mobile phones positively impacted on the development of their businesses and their turnover. The NICI process was currently ongoing in both countries in which women account for 52 per cent of the population.

Box 11: ICT penetration challenges

The ICT penetration rate was still low for Chad and Togo and more so for women. Several reasons were attributed to this low rate and these were linked to challenges at different levels.

- **The social factors** - the school enrolment and literacy rates of the girl child and women were very unsatisfactory in both countries.
- **The technological factors** - lack of infrastructure, telecommunication/computer equipment, access constraints and prohibitive costs (low purchasing power) deterred women from effectively benefiting from ICT usage.

The political factors - under-representation of women in the ICT sector decision-making bodies. The lack of an official gender policy in the two countries was an inhibiting factor for gender mainstreaming in the NICI plans.

In general, the following should be taken into account within the framework of the NICI process:

- At the level of policy and decision-making, the issue of gender mainstreaming should be taken into consideration. During the NICI process consultations, women's participation in committees such as the NICI technical committee among others is essential;
- Mainstreaming gender in the NICI process should address two main approaches:
 - The use of ICT to resolve gender inequality; and
 - The formulation of policies that address gender inequality.

- Budgets should provide for allocations for projects aimed at strengthening the capacities of women so that they could play their social, economic and political role effectively;
- ICT digital literacy by women through women's organizations and the respective ministries' responsible for gender affairs;
- The utilization of ICT as an advocacy tool for the advancement of women;
- The introduction and adaptation of skills training at several levels so that women are not permanently relegated to menial jobs;
- The production of domestic content adapted to the needs of women by women from the local knowledge they possess on health, education and social organization; and
- The identification of indicators to facilitate the evaluation of ICT projects from a gender mainstreaming perspective on a more objective basis.

2.6 Stakeholders' participation

Since the ICT sector extends beyond the traditional boundaries of the industrial and services sector, the formulation of ICT policies can only be achieved through a broad-based participatory process. National strategies cannot singularly deliver AISI goals without the express involvement of key national stakeholders such as media, private actors, academia, civil society organizations, parliaments, youth and women's groups. It is very crucial that the rationale and the premise on which the general policy framework is founded are well understood by all stakeholders, and all their legitimate concerns are taken into consideration. Stakeholder involvement is crucial to strengthen local ownership and participation in order to harness the different capabilities and capacities and the required resources in addition to ensuring an operational implementation framework.

The WSIS Action Plan (2003) recommended the initiation at the national level of *“a structured dialogue involving all relevant stakeholders, including through public/private partnerships, in devising e-strategies for the Information Society and for the exchange of best practices.”*

A multi-stakeholder approach will define the responsibilities of all and promote the participation of governments, the private sector, civil society and all other relevant groups. This approach would also ensure cooperation and co-ordination of various initiatives by all parties in order to optimise the allocation and utilisation of ICT resources.

2.6.1 NICI process stakeholders' participation

ECA's work in developing e-strategies has been closely linked to a multi-stakeholder partnership strategy for building a sustainable the Information Society. The success of NICI efforts to date has been based on the inclusionary nature of the process, including as many stakeholders as possible. The formulation processes of e-strategies, from the baseline study stage to the validation, should therefore involve structured stakeholder consultations. Major stakeholders include, government bodies and parastatals, the private sector, national regulatory bodies, telecommunication operators, NGOs, civil society, Members of Parliament, academia, media practitioners, research centres, IT experts, regional and international organizations.

Whilst governments have a leading role in developing and implementing comprehensive forward looking and sustainable national e-strategies, the private sector and civil society have an important consultative role to play in this process. The ultimate goal for any NICI policy should be a process of participatory and consultative planning involving actors and expertise from all levels of society. On the occasion of the launch of the Swaziland NICI policy, the Hon Prime Minister advised that,

*“His Majesty’s Government is committed to work with all stakeholders in the implementation of the ICT Policy. Government is aware of the great milestone that we can achieve through ICT. May I also thank the Private sector for joining us for this great event and I believe they will continue to partner with us in the development of ICT in the country.”*¹³

The consultative process in the first and the second NICI cycles in Rwanda was extensive and involved all key stakeholders from the public and the private sectors. The development of the ICT4D Policy document, and later, the NICI-2005 Plan in 2000 and the NICI-2010 Plan, also involved a series of consultative meetings with key stakeholders. In the case of the NICI-2005 Plan, a national Task Force with a multi-stakeholder membership, coordinated the plan development process and ensured that all key stakeholders participated in, and contributed to the development of the details of the Plan. A number of Ministerial Plan Action Committees and Cluster Working Groups were set up under the auspices of a National Task Force to facilitate across the board involvement at the level of the government ministries and as well as at the sector level.

For the Ghana process, the development of the Framework Document was based a nation-wide consultative exercise undertaken by the National ICT Policy and Plan Development Committee. This involved public meetings covering all the 10 regions of the country in which over 60 organizations participated over a period of ten months. Like in the case of the development of the Framework document, the Policy document development process was through a national consultative exercise involving key stakeholders from all sectors. The formulation of the ICT Policy Statements for each of the government ministries and public sector organizations was set within the wider framework of the national ICT4AD Policy Statement. The Ministerial Policy Statements were designed, through a consultative process, to facilitate the national ICT4AD Policy implementation ownership process within the government ministries and public sector organizations.

As part of developing a national ICT policy in Swaziland, stakeholders, including government officials, media, academia, women, civil society and youth initially engaged in a national debate on building of an inclusive Information Society in the Kingdom. The NICI stakeholders programme involved a series of workshops to promote awareness on ICTs as a tool for poverty reduction, to accelerate the MDGs, spelling out the role of each stakeholder at various stages of the policy process from formulation to implementation.

The development of both the Nigerian National IT Policy and the NICI Plan involved extensive stakeholder participation. Consultations were held nationally, targeting key sectors including the public sector, private sector and civil society. The Nigerian Diaspora also played a key role in the process. The

13 Statement by H.E. the Right Hon. Prime Minister Absalom Themba Dlamini during the launch of the Swaziland ICT Policy, 3rd August 2007

government established a National Task Force to facilitate the Policy development process. This was a multi-sectoral Task Force with representation from all key sectors.

In the Malawi process, national dialogue, serving as a national consultative process, was carried out as a key activity of the study underlying the development of the Framework (2002) and the Policy documents (2003). The process was a consultative one that brought on board all key stakeholders, government, private sector and civil society.

Recognizing the essential need for spatially referenced data and geoinformation products to support the achievement of national development priorities, the ECA has been assisting countries in the development of integrated NICI/National Spatial Data Infrastructures (NSDI) e-strategies resulting in geo-enabled NICI's. Geospatial information enhances and adds value to the infostructure through spatial analysis introduction in the e-strategy priority sectors. This initiative calls for strong coordinating mechanisms and interaction between the two groups of stakeholders. Countries which have developed ECA assisted integrated NICI/SDI strategies include Ghana, Malawi, Nigeria, Rwanda, Sierra Leone and Swaziland.

Stakeholders should also develop strategies for engaging with governments and decision-makers to strengthen the emerging democratic culture in African countries. The adhesion of decision makers and all stakeholders to the Information Society concept is therefore essential for the success of the NICI plans to be developed in member States.

2.6.2 Stakeholder networks

To sustain the involvement of stakeholder groups in the AISI implementation at national and sectoral levels, the ECA continues to provide member States and development associations with support in the formation of stakeholder networks. National networks provide a mechanism for broadening and sustaining the modalities for stakeholder participation and enabling them to effectively participate in decision-making. Networks serve as a vehicle for peer reviewing, sharing of ideas, communication and as opportunities for continuous personal and professional development.

ECA has been involved in intensive training activities to build the capacity of various stakeholders on key Information Society issues and encouraging their active participation in the policy formulation and implementation processes through the creation and maintenance of networks. More than 900 stakeholders from 15 countries have benefited from such training. These countries include Benin, Cameroon, Chad, Ethiopia, the Gambia, Ghana, Kenya, Niger, Rwanda, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, and Uganda. Stakeholder networks for the media, news agencies, the youth, private sector and women now exist in most of these countries. These networks now play a key role in the implementation processes of respective NICI plans. Members of Parliament have been involved in the building of an African Information Society through training courses including hands on practical lessons on the use of the Internet and on basic computer applications. These activities were conducted in the Gambia, Kenya, Niger, Swaziland, and Uganda, and in the Southern African Development Community (SADC). ICT committees were established within the Parliaments of the Gambia, Niger, Uganda and Swaziland.

Indicators for Benchmarking and Measuring the Information Society: The Scan-ICT Initiative

3.1 Background

At the launch of the African Information Society Initiative (AISI), it was recognised that the regional efforts to harness ICT for development would only be realized if nations designed and implemented effective and appropriate tools enabling them to measure the impact of ICTs on various sectors of the economy and citizenry. The fact that there was more demand for limited development resources necessitated the need for such tools. Empowering decision makers at all levels and providing them with timely and relevant information about the application and

utilization of ICTs would enable them to identify the gaps and plan for future course of action. This would also facilitate the use of improved mechanisms for the monitoring and evaluation of ICT initiatives in the region and the design of appropriate R&D strategies. Currently, reliable basic indicators for gathering and consolidating data on the impact of ICTs in Africa are scarce because most African nations' lack basic information on key economic and social indicators and ICT -related activities.

To respond to this challenge, the Scan-ICT Initiative was launched in November 2000 as a collaborative project between the Acacia programme

Box 12: Elements of Scan-ICT

- **Indicators and Benchmarks:** which are essential for measuring progress made based by countries on the Information Society.
- **Policy Issues:** The results of the Scan-ICT project should assist countries overhaul unfriendly policy environments, and create enabling frameworks.
- **Human resources:** Scan-ICT can be used as an instrument for monitoring the growing demand for ICT skills.
- **Applications:** tailored for entrepreneurs, communities, and those involved in social services, such as education and health care.

Within these, the programme is meant to:

- Determine ICT status and collect and disseminate ICT-related information in Africa;
- Develop and continuously refine a set of indicators that can be used to measure ICT activity and progress in Africa and to guide investments that can enhance social and economic development;
- Develop a continuous benchmarking strategy that can be implemented to improve performance of ICTs in Africa;
- Promote effective use of national capacity; and
- Create public awareness about the importance of ICTs for development.

of the International Development Research Centre (IDRC) and the ECA, with financial support from the European Union (EU) and the Norwegian Agency for Development Co-operation (NORAD). Scan-ICT monitors the penetration, impact and effectiveness of ICT applications in pilot African countries, providing added value to the AISI implementation at the national, regional and global levels. It is a multi-partnership initiative that builds support for the phased development of a comprehensive African capability 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. In addition, Scan-ICT offers an opportunity to build African capacity to influence ICT investments, extend their impact, develop sound policies and encourage the development of African solutions, applications and content. The goal of Scan-ICT is to create a pan-African ICT network that would collect, analyse and disseminate ICT-related knowledge in an open manner.

Furthermore, the Scan-ICT Initiative aims to assist member States in their efforts to develop national information societies and economies by developing and compiling suitable Information Society/ICT4D indicators to guide their ICT policy and plan formulation and implementation process. The initiative also monitors, assesses, evaluates and measures the impact of the Information Society/Information Knowledge Economy on the socio-economic status of citizens, the performance of the economy and functioning of the public sector.

3.2 Scan-ICT Phase I

The first phase of the initiative, which incorporated six countries, Ethiopia, Ghana, Mozambique, Morocco, Senegal and Uganda was completed in 2004. The minimum and common themes identified for data collection were based on indicators developed in AISI focus areas such as infrastructure, sectoral applications (education, health, public sector and private sector) and the information economy.

The conclusions of country-level Scan surveys noted that a number of constraints existed with regard to expansion of the ICT sector in the Scan-ICT pilot countries. Interestingly, the major constraints cited included the lack of adequate infrastructure and high cost of ICT equipment and connectivity, although figures from the sectoral applications repeatedly showed that there was wide under-utilisation of computers and Internet access.

Underpinning these specific constraints in the Scan-ICT pilot countries, however, was the lack of a critical foundation in terms of an enabling policy environment that encouraged innovation. There was also a lack of requisite skills and institutions to adapt new technologies to local needs to enable nations to exploit the opportunities associated with the technology revolution. Innovations in technology must be matched by innovations in policy to mobilise the creative potential to transform global technological advances into tools for human development.

More specifically, the country-level surveys addressed education, health, public administration and the private sector/private ICT firms. Major findings included:

- ICT penetration was generally higher in educational institutions and public administration facilities than in health institutions in most of the six pilot countries;

- Individual numbers of staff using ICTs appeared widely spread, for example, 62 per cent of institutions in a particular sector reported that staff were using computers and the vInternet, whilst only a few staff in each institution actually possessed that capability;
- A shortage of qualified staff appeared to be a critical issue for all sectors. The proportion of ICT experts was extremely low; often this was due to the fact that relatively few schools and universities had fully incorporated ICT into their curricula;
- Computers were widely used only as traditional office tools; and
- Although home pages and elaborate sites on the World Wide Web had become very popular throughout the world, the percentage of institutions with web sites in the surveyed sectors was low and the content of the sites was frequently limited to generic information. Thus, the resources of the Internet as a tool for business and commerce had yet to make a substantive impact in the Scan-ICT sectors and industries.

Competition had spurred the demand for skilled ICT personnel yet training institutions were concentrated in urban areas, resulting in an acute shortage of ICT professionals in rural or semi-urban areas. The study results suggested that on-the-job training opportunities remained very low across all sectors and emphasised the need for improved co-ordination in ICT training through standardisation of courses.

Major recommendations of the first phase of the Scan-ICT project may be divided into three categories: policy issues, human resources development and infrastructure. Specific recommendations included:

- Creating an enabling policy environment for ICT for development by strengthening regulatory frameworks, instituting policy reforms in the telecommunications sector and taking measures to reduce taxes and duties on computers and accessories, Internet connections and access charges;
- Encouraging enterprise development and private investment by increasing the availability of credit facilities and creating venture capital;
- Increasing access by empowering citizens economically through the implementation of innovative poverty-reduction programmes;
- Preparing and implementing comprehensive ICT for development master plans for addressing current and future ICT needs;
- Providing priority status to small ICT projects (telecentres etc), with comprehensive and immediate development impact instead of large capital intensive projects;
- Designing and launching ICT training programmes starting with the tertiary level and gradually extending the coverage to lower levels, including general awareness creation campaigns on ICT issues;
- Encouraging and supporting the private sector engaged in R&D and applied research activities in software development to participate in joint research ventures with foreign companies that would benefit from access to the regional low-cost labour workforce; and
- Expanding infrastructure and increasing ICT access points to basic telecommunications services to bridge the urban-rural ICT infrastructure gap.

The methodological framework developed for the first phase was acknowledged by most countries as serving the intended purpose.

3.3 Results from the first phase

The pilot phase involved the setting up in participating countries of institutional structures and organisational mechanisms for the collection of reliable indicators in ICTs utilising a harmonised methodology. Minimum and common areas identified for data collection included infrastructure, sectoral applications (education, health, public administration, private sector) and information economy.

The country level Scan surveys in the six pilot countries noted that a number of constraints existed with regard to the expansion of the ICT sector. Interestingly, the major constraints cited included lack of infrastructure and high cost of ICT equipment and connectivity, although figures from the sectoral applications showed repeatedly that there was generally under-utilisation of computers and Internet access. This necessitated the need for another strategy to improve the use of existing facilities.

The Scan-ICT survey results indicated that the six pilot countries were following different ICT development patterns and this had resulted in different ways of addressing the resultant ICT challenges. In some cases, building infrastructure was emphasised, whilst in others, education/training and a strong skills base were paramount. In all however, some combination of unshackled telecommunications systems and the sufficient regulatory capacity to sustain and manage ICT activities was required to overcome the constraints to ICT deployment and usage. Fig. 8 below summarises the overall status of the telecommunications sector (liberalized or government monopoly) in the six Scan-ICT pilot countries.

Fig. 8: Liberalized Telecommunications Sector

Yes	No
Ghana	Ethiopia
Morocco	Mozambique
Senegal	
Uganda	

Source: Scan-ICT: Understanding ICT Penetration and Usage in Africa - A Synthesis of Results of the Scan-ICT Pilot Project, IDRC and UNECA, 2003.

Telecommunications sectors in most Scan-ICT pilot countries had experienced tremendous growth, primarily attributable to the liberalization of telecommunications services. Local capabilities are now wide-ranging, involving digital switching, optical and microwave transmission, wireless equipment and satellite communications. Even so, large parts of rural areas lack telecommunications infrastructure, and the cost of services is still too high for most Africans.

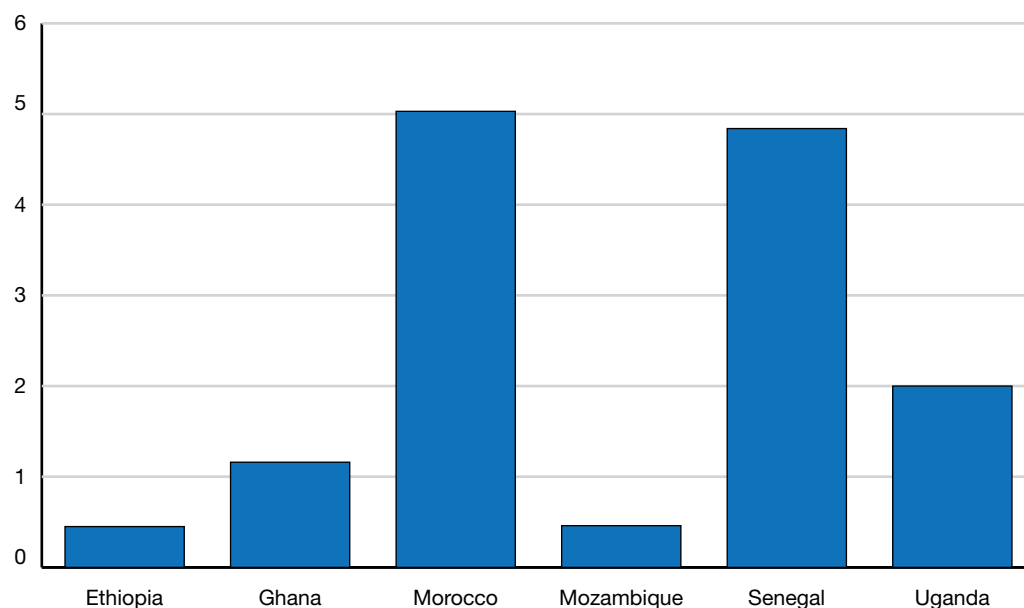
Overall, network evolution is occurring rapidly, from fixed lines to mobile; in Uganda, for example, there are more than 400,000 mobile lines to 60,000 fixed lines. By 2002, the number of mobile telephones in Senegal – which as recently as 1996 had totaled only about 100 – also had nearly doubled the number of fixed telephones, to about 550,000. Mobile teledensity in Morocco is estimated at 17 per 100 people. Different reasons have been given for this trend, but mobile services provide a viable solution to challenges arising out of inadequate spread of the fixed-line infrastructure; the need for quick deployment and ease of installation; and requirements for general mobility.

Even though mobile costs were coming down, the majority of people cannot afford handsets or other such products. Because the cheapest brand-name mobile phone still costs, on average, about US\$50 in Mozambique, a country where salaries average US\$33 a month, many people prefer to buy non-brand-name or secondhand sets. Also in Mozambique, many mobile subscribers – usually those with the least financial resources – have joined a pre-paid system whereby they purchase the cheapest card and simply “beep” others they want to call them back. Costs of name-brand mobile handsets in other countries, such as Ethiopia, range from US\$70 to as high as US\$435.

Despite the growth of mobile telephony, overall teledensity in Africa generally remains very low and basic telephone services fall short of real needs; in many cases, the quality of the support network and associated services was below International Telecommunications Union (ITU) standards. Teledensity also can vary enormously by region; in Ethiopia the number of people per main telephone line ranges from 15.4 for the capital, Addis Ababa, to 1,935 in Somali, a region mainly inhabited by nomadic pastoralists. Copper is still generally used for connecting end users to a secondary network, and fiber-optic networks are still in the early stages in some countries. Both dial-up and leased lines are offered, as are ISDN services; however, given the high cost of bandwidth, leased lines and ISDN are generally used only by commercial enterprises such as ISPs, Internet cafes and banks.

The chart below (Fig. 9) shows the average teledensity per 100 inhabitants for each of the six countries:

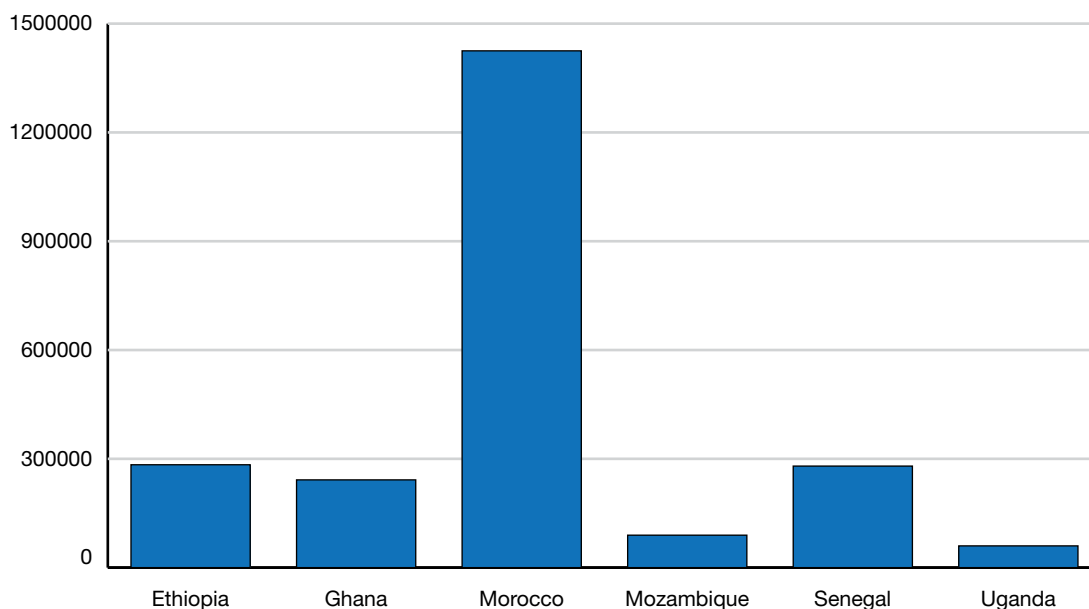
Fig 9: Average Teledensity (2003)



Source: Scan-ICT: Understanding ICT Penetration and Usage in Africa - A Synthesis of Results of the Scan-ICT Pilot Project, IDRC and UNECA, 2003.

Although overall figures are still very low, the number of fixed-line subscribers has sometimes increased by as much as 10 percent annually, as have waiting lists for phone lines. The chart below (Fig 10) shows the number of fixed lines in the pilot countries.

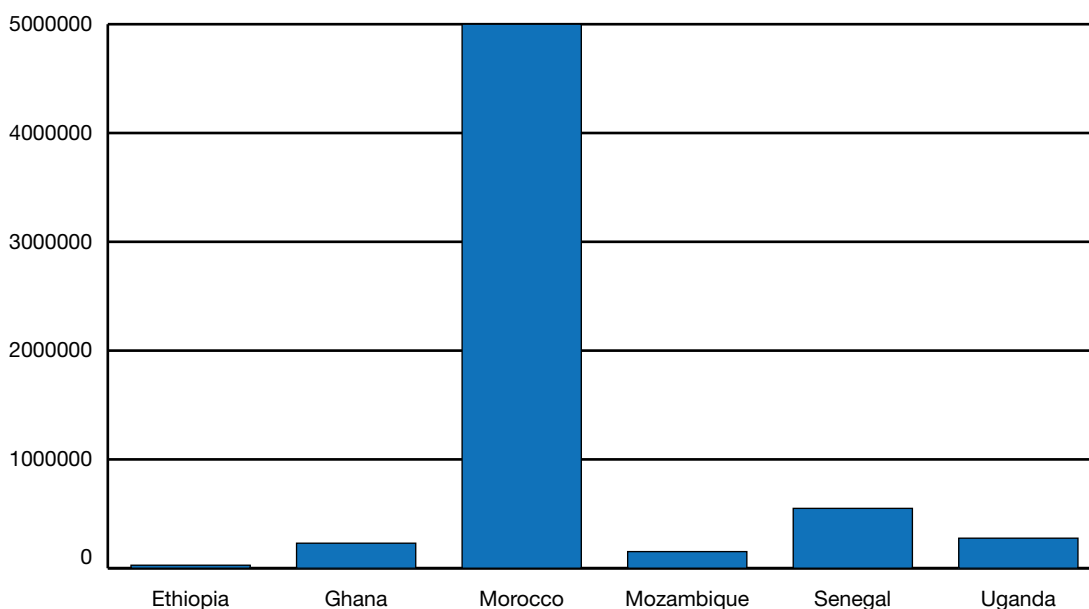
Fig. 10: Number of fixed telephone lines (2003)



Source: Scan-ICT: Understanding ICT Penetration and Usage in Africa - A Synthesis of Results of the Scan-ICT Pilot Project, IDRC and UNECA, 2003.

Meanwhile, mobile telephony subscribers have grown exponentially, as in other parts of the world, and surpass fixed subscribers in at least three pilot countries; mCel, the mobile service provider in Mozambique, increased its subscriber base from 2,500 in 1997 to 152,652 in 2001. The Ghanaian base, meanwhile, rose from 6 200 in 1998 to the current 230000. As might be expected, the vast majority of mobile phones – up to 92 per cent, in some cases – are in the private sector, where demand remains very high. The chart below (Fig. 11) illustrates the number of mobile subscribers on a country-by-country basis.

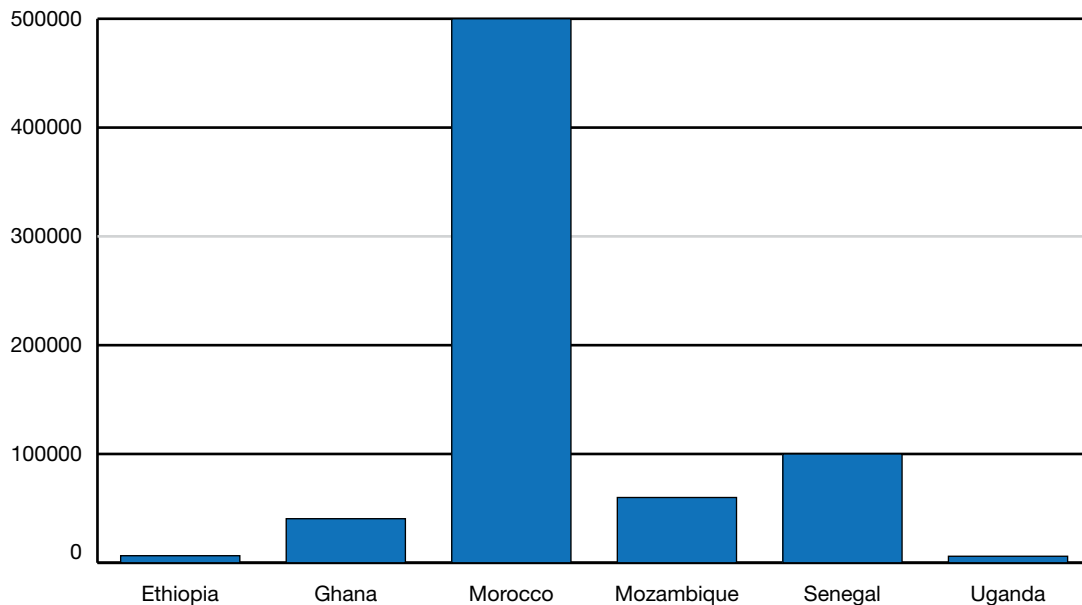
Fig. 11: Number of mobile subscribers



Source: Scan-ICT: Understanding ICT Penetration and Usage in Africa - A Synthesis of Results of the Scan-ICT Pilot Project, IDRC and UNECA, 2003.

The chart below (Fig. 12) shows the estimated number of Internet subscribers or users in the six pilot countries; the estimated number of users is usually several factors higher than actual subscribers.

Fig. 12: Estimated number of Internet subscribers or users



Source: Scan-ICT: Understanding ICT Penetration and Usage in Africa - A Synthesis of Results of the Scan-ICT Pilot Project, IDRC and UNECA, 2003.

3.4 Scan-ICT Phase II

In evaluating Phase I, African researchers, regulators and statisticians found the process and outcomes useful for implementation at a larger scale with the full involvement of National Statistical Offices (NSOs). This was in line with the recommendations of Phase I of the World Summit on the Information Society (WSIS), which urged countries to regularly review activities related to ICT deployment, development and usage. In this context, it was deemed essential to empower the NSOs to sustain the development of regional ICT indicators.

For Phase II of the Scan-ICT initiative, NSOs, national observatories for ICTs and ICT ministries from participating countries were identified as implementing partner agencies to undertake the Scan-ICT II country studies. The programme is currently being implemented in five countries with financial support from the Government of Finland - - Cameroon, the Gambia, Ghana, Mauritius and Rwanda. The main objective of Phase II is to ensure the sustainability of the Scan-ICT process by integrating it as an essential part of the NICI process and linking core indicators with global indicators to further develop the methodology. To ensure the sustainability of the Scan-ICT process, the NSOs or respective government agencies must be closely involved in the process. The ultimate goal of Scan-ICT is to create a pan-African ICT network that would collect, analyse and disseminate ICT4D indicators. Each Scan-ICT II country would establish a permanent framework and process with adequate institutional based on the country's political, economic and cultural factors. The national Scan-ICT process would be established as part of the NICI process, which is primarily coordinated by ICT ministries. The follow-up process would be established under NSOs to measure ICT development and its impact on

socio-economic development, through continuous status monitoring, assessment and measurement and benchmarking at the regional and global levels.

Box 13

"The ICT sector is not only expected to evolve as the fifth pillar of growth but will also revamp traditional sectors. By cutting across all sectors, information technology will enhance productivity and quality, and improve competitiveness. Thus, the ICT sector will enable Mauritius to plug fully into the net economy and help this part of the world to be a full participant in the digital economy."

H. E. Etienne Sinatambou, Minister of IT & Telecommunications, Mauritius

Scan-ICT II was launched locally in each of the six countries participating in the initiative. In the Gambia, the Honourable Neneh MacDouall-Gaye, Secretary of State for Information and Communications stated that the Government of the Gambia is fully committed to promoting the Information Society and making effective use of ICTs for attaining its development objectives. She also stressed the strong need for measuring and monitoring the progress made in implementing ICT programmes so as to ensure the benefit and impact of such programmes and demonstrate the linkage to the overall development objectives of the country.

In Mauritius, the Honourable Etienne Sinatambou, Minister of Information Technology and Telecommunications remarked, "Mauritius is determined to develop a knowledge, innovation and technology-based economy. Government is fully committed to providing stakeholders with opportunities to develop the sector and to make ICT a truly fifth pillar of the economy. To this end, the elaboration of e-strategies has become a very important national instrument to ensure the participation of everybody in the development of the Information Society. It is recognized that measuring the Information Society, in particular the use and impact of ICTs, is a precondition for formulating and assessing ICT policies and strategies and monitoring the digital divide." Furthermore, the Minister reiterated that Government was according high priority to the development of the ICT sector to transform the country into a cyber island.

In her opening remarks at the Ghana Scan-ICT workshop, the Government statistician, Dr. Grace Bediako, reiterated the Government's commitment to the collection and analysis of data on ICT4D indicators so as to measure Information Society development in Ghana and monitor and evaluate the progress made in the implementation of the Ghana NICI plan and strategy over a period of time and this required support from all partners in implementing such activities.

Box 14

"There is much concern on the digital divide, but acquiring data on the accessing and using ICTs at household, business and government levels is a great challenge, resulting in a gap for making the right policy decisions by our policy makers."

Dr. Grace Bediako, Government Statistician, Ghana

Scan-ICT II countries are expected to develop a document on methodology indicating priority theme areas, selected indicators, data collection and analysis methodology, development of survey instruments, geographical coverage, publication and dissemination of the findings. In addition, they will develop country profiles with baseline data and conduct qualitative analysis on the ICT use and impact in the priority theme areas. The outcomes will be published in a national Scan-ICT website and database. The process was launched through national consultation workshops in all participating countries. Core ICT4D indicators, the methodology and appropriate institutional arrangements to implement the process were defined at this meeting. Cameroon completed the project and submitted a final report and launched a website of the findings. The process in the Gambia, Ghana, Mauritius, and Rwanda are undertaking data analysis and database/website development, the results of which will be available by the end of 2007.

The Scan-ICT Cameroon project made key recommendations and identified measures to enable ICT access and training in the use of ICT. These included:

- Training of personnel in the use of ICT - the State should train trainers to transmit ICT knowledge to the population and include ICT in school curriculum;
- Reducing the cost of communication and equipment by reducing taxes on goods and services in the ICT sector;
- Sensitising and popularising ICT to improve awareness and use of ICT's at the national level; and
- Providing subsidies to the sector - the State should provide subsidies to the sector to ensure that ICT's are mainstreamed for development.

3.5 Scan-ICT Phase II Methodology Framework (Toolkit)

In Scan-ICT Phase II, ECA developed a comprehensive framework for the development of Information Society status and impact monitoring, assessment and measurement indicators. The toolkit was build on the details of the methodology developed as part of the Scan-ICT Phase I pilot project.

The Toolkit incorporates a framework for the development of suitable indicators for assessing the status of the development, deployment and the use of ICTs in African countries and facilitates the process of guiding the NICI policy and plan development process as well as monitoring of NICI implementation in African countries.

The methodology in broad terms addresses among other things issues relating to

- The identification and the development of suitable e-readiness/baseline study and other Information Society impact assessment, measurement and monitoring indicators including key ICT and NICI Indicators;
- To linking the indicators development system and process to national ICT policy development process in African countries;
- The development of suitable core indicators to serve as Africa's input into the international process targeted at developing and harmonizing core ICT indicators to facilitate comparative analysis across countries and regions;

The methodology is based on the Capacity, Usage and Transformation (CUT) model (fig 13) and it incorporates a number of specific frameworks for:

- ***Developing Indicators for Key Sectors of the Economy:*** A framework for the development of ICT-related indicators for key sectors of the economy provides a basis for the integration of these indicators into national statistical systems – the key sectors: ICT sector/industry, services, industry and commerce, agriculture, education, health government and public sector;
- ***Developing Broad ICT4D Application Area-Specific Indicators:*** A framework for developing indicators targeted at measuring the status of the deployment and exploitation of ICTs to implement broad areas such as, e-government, e-commerce and business, e-education, e-health and telemedicine among others;
- ***Classification of Indicators in terms of ICT4D Policy Focus Areas:*** A framework for classifying indicators in terms of ICT4D Policy focus areas which form the building blocks of national ICT4D policies and plans in African countries (e.g. infrastructure development, universal access and services, legal and regulatory institutional frameworks and environment etc);

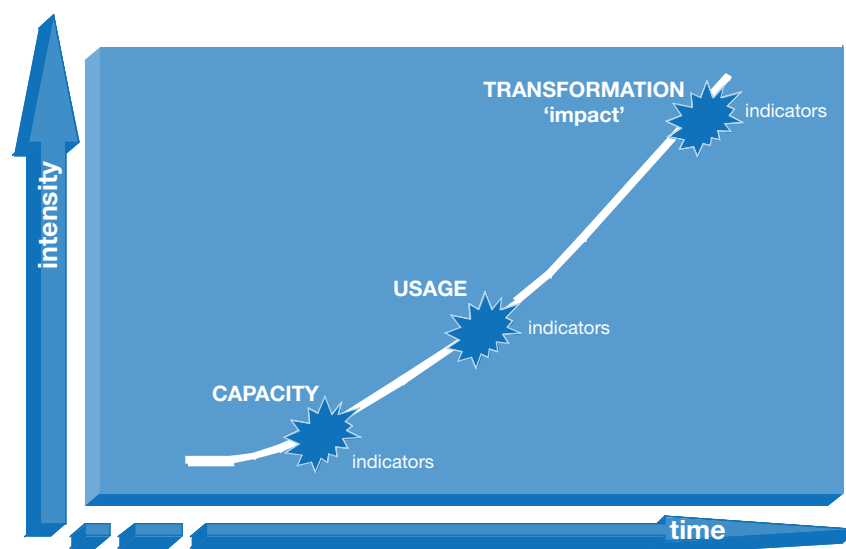
Classification of Indicators in terms of the Features of and Information and Knowledge Economy (IKE): A framework for classifying indicators in terms of features of the information and knowledge economy and society (e.g. high income economy dominated by trading in ICT products and services; an economy characterized by a large commercial services sector with a reasonably large and vibrant ICT services sector and industry among others);

In relation to developing indicators for measuring the impact of the Information Society and the economy, the methodology in broad terms makes provisions for:

- The development of suitable ICT4D indicators to monitor and measure progress towards the development of the information and knowledge economy in both developed and developing countries;
- Distinguishing between baseline/e-readiness impact monitoring, assessment and measurement indicators; and
- The development of suitable indicators for integration into national statistical systems.

The CUT model illustrated in fig. 13 has been developed to provide the basis for the identification and the development of ICT4D indicators.

Fig. 13: The ‘CUT’ Model for ICT4D Indicators



The model classifies ICT4D indicators into three categories:

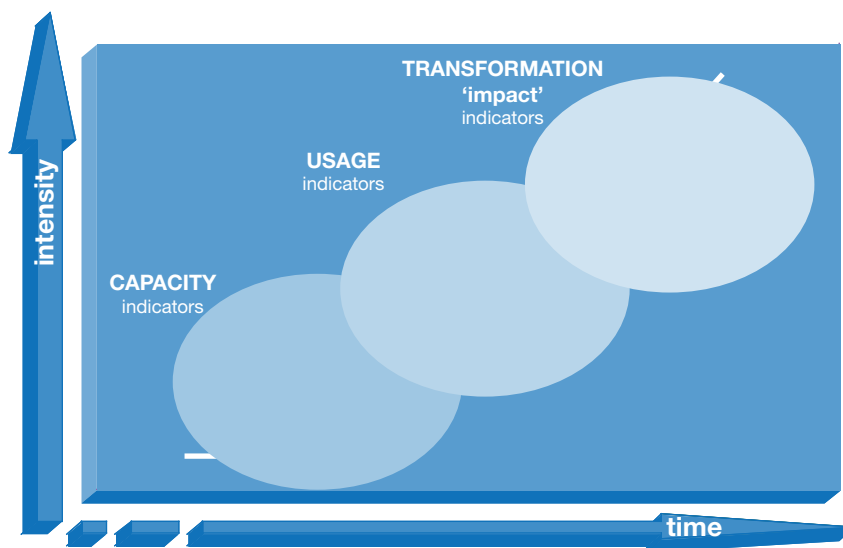
Capacity indicators - indicators targeted at measuring the level and extent of the development and deployment of the ICT infrastructure and other related resources (e.g. human resources) targeted at the development of the Information Society and economy;

Usage indicators - indicators aimed at assessing and measuring the extent of usage of ICT capacity and related resources by households, businesses and government entities; and

Transformation or impact indicators -- indicators targeted at measuring the social and economic impact of the deployment and usage of ICTs within the economy and society.

Figure 14 illustrates some of the broad indicators:

Fig. 14: The ‘CUT’ Model for ICT2D Indicators



Source: Scan-ICT Phase II Methodology Toolkit, UNECA, 2006

3.6 ICT Measurement: The International Dimension

A number of international activities are underway to measure the Information Society. At the WSIS, the importance of benchmarking and measuring progress towards the Information Society was stressed. In the WSIS action plan, nations and international organisations were called upon to allocate appropriate resources for the provision of ICT statistics and to develop effective measurement methodologies including basic ICT indicators and an analysis of the state of the Information Society. In response, the key stakeholders involved in the statistical measurement of the Information Society created a global Partnership for “Measuring ICT for Development” in June 2004.

**PARTNERSHIP ON
MEASURING ICT
FOR DEVELOPMENT**

The Partnership aims to accommodate and develop further the different initiatives regarding the availability and measurement of ICT indicators at the regional and international levels. It provides an open framework for coordinating ongoing and future activities, and for developing a coherent and structured approach to advancing the development of ICT indicators globally, and in particular in developing countries. Its objectives are as follows:

- Achieve a **common set of core ICT indicators** to be harmonized and agreed upon internationally, which will constitute the basis for a database on ICT statistics;
- Enhance the **capacities of national statistical offices** in developing countries and build competence to develop statistical compilation programmes on the Information Society, based on internationally agreed upon indicators; and
- Develop a **global database on ICT indicators** accessible via Internet.

The major outputs of the Partnership include:

- The first set of core ICT indicators was adopted at the WSIS Thematic Meeting in Geneva (7 - 9 February 2005);
- The Partnership Publication Core ICT Indicators was launched by the Partnership on Measuring ICT for Development on 15 November 2005, at WSIS in Tunis. It presents the core ICT indicators, definitions, model questions and suggestions on data collection for developing countries; and
- The publication “Measuring ICT: The Global Status of ICT Indicators” was also released at WSIS in Tunis and presents the results of a stocktaking of statistical measurement of ICT in all countries.

Regional Workshops have taken place in Addis Ababa, Beirut, Gaborone and Santiago de Chile for capacity building in developing countries.

Current partners include EUROSTAT, ITU, OECD, UNCTAD, UNESCO Institute for Statistics, the UN Regional Commissions (UNECLAC, UNESCWA, UNESCAP, UNECA), UN ICT Task Force, and the World Bank Group.

The Partnership list is comprised of forty-two core ICT indicators under four categories: (a) ICT infrastructure and access, (b) access to, and use of ICT by households and individuals, (c) use of ICT by businesses, and (d) ICT sector and trade in ICT goods. The agreed-upon list was recognized at the 36th session of the United Nations Statistical Commission, held in New York, during 1-4 March 2005.

However, the list was not intended to be a final list, as it does not cover all vital sectors of the information society in details. Hence members of the Partnership agreed to further develop specific sectors including e-government, and ECA was entrusted to coordinate development of e-Government indicators and participating in other task groups such as this ICT4D Indicators Capacity Building and Database Development.

Based on various key functions of ICTs, the following seven areas were proposed for use as a starting point for defining an exhaustive list of e-Government indicators for the Partnership.

These include:

- Public sector management;
- Delivery of public services;
- Facilitating development of the private sector;
- Legal and judicial reforms;
- Policy, legal and regulatory frameworks;
- Strengthening the capacity of parliaments; and
- Empowering local authorities.

In addition to review the progress of the implementation of Scan-ICT Phase II and the status of ICT measurement in Africa, and under the framework of the Partnership, ECA and its partners organized a regional workshop held in March 2007 in Addis Ababa, Ethiopia. The objective of the workshop was to add value to the work of the Partnership on Measuring ICT for Development and ECA's ICT Measurement project (Scan-ICT) and to advance the availability of comparable data on ICT in the region. The workshop presented a platform for representatives of NSOs and representatives of ministries and regulatory agencies (producers and/or users of ICT statistics) to discuss the need for comparable data on Information Society developments and share best practices in ICT measurement at the regional level. The workshop also examined and reviewed results achieved and challenges encountered in the implementation of Phase II of ECA's ICT measurement project. In addition, the preliminary results of the AISI Academia Research Network's (ARN) work on Information Society Indicators in Africa were reviewed.

The workshop provided practical recommendations on policies, programmes and mechanisms for monitoring and measuring regional Information Society developments with the aim of promoting the production of comparable ICT statistics and indicators for effective ICT policy development.

Regional Integration: Focus on UEMOA & ECOWAS

Global and regional forces have had significant impacts on the emergence of the Information Society. Increasing attention is being given to issues of globalization and the cross-border nature of many development challenges through the pursuit of regional initiatives and integration. Also prevalent are ICTs, which are becoming indispensable in the integration process.

This fact is further buttressed by recent innovations in telecommunications and transport that have condensed time and space, quickened the pace of globalization, increasingly disintegrating economic and political nationalism and accelerating regional integration or regionalism worldwide. Examples include Mercosur (the Southern America Common Market), North American Free Trade Agreement (NAFTA), European Union (EU), and Association of South East Asian Nations (ASEAN) to name a few. However, in Africa, the lack of adequate transport and communications infrastructure is a formidable constraint that makes trade between many countries

difficult and costly. Technological innovations, especially in the areas of information management and communication, combined with increased capital mobility, have exposed the limitations of national economic policies.

Consequently, developing an Africa Regional Information Infrastructure (ARII) through policies and plans at the sub-regional levels will go a long way in facilitating greater interconnectivity between countries as well as the interoperability of networks. Such efforts would help resolve local imbalances and inefficiencies through the development of common networks and regional backbones, improve universal access and narrow the digital divide in the 'least connected' countries.

4.1 Regional information-society strategies

From the African perspective, a subregional Information Society strategy can help build a better

Box 15: AISI on Regional Integration in Africa

The creation of an African Information Infrastructure is both a necessity and an opportunity to accelerate development in all spheres of African economic and social activity.

AISI focuses on priority strategies, programmes and projects, which can assist in the sustainable buildup of an information society in African countries. This is in accordance with the regional integration goals of the Treaty establishing the African Economic Community.

Source: AISI, articles 8 & 17

knowledge environment, increase dialogue at the highest political levels, build political consensus, as well as create a common vision for digital opportunities for countries. As a result, supporting regional integration in Africa through ICTs has been an innovation in the AISI implementation process, known as the Regional Information Infrastructure and Communication Strategies and Plans (RICIs).

These strategies and plans can promote harmonization of national ICT policies and regulatory frameworks, establish open standards, and promote interoperability/interconnectivity. Developing a common vision through the RECs in Africa could improve prospects for mainstreaming ICT applications into other regional initiatives and strategies. This lays the required foundation for promoting greater economic integration (increased intra regional trade and economic cooperation among countries, accelerated integration of countries into the global economy, resource mobilization, etc.). As a result, small market sizes can be overcome and economies of scale achieved.

Therefore, the RICI process facilitates the Information Society programme of the RECs to:

- Provide a facility for harmonizing national strategies at the sub-regional levels by Regional Economic Communities for consistency in regional economic integration goals in the area of ICTs;
- Allow for harmonization of national regulatory frameworks as countries deregulate and liberalize their telecommunication markets; and
- Provide a framework for the development of information and communication infrastructure that can facilitate regional economic integration goals of the African continent.

4.1.1 Benefits of regional strategies

Ultimately, there are major benefits for a regional or subregional approach to integration through ICTs. This includes amongst others: -

- *Policy and Regulatory Integration* - The creation of regional strategies would enable Africa to build economies of scale for developing its infrastructure and content and increase Africa's ability to negotiate globally. Regulatory integration at the regional level would create and strengthen the community/associations of regulators to facilitate cross-boarder interaction, market enlargement and harmonization policies at the sub-regional and regional levels;
- *Infrastructure Development* - This will include the setting up of subregional backbones, exchange and interconnection points and human resource development. Mechanisms for sharing bandwidth within the subregions should be looked into as part of the facilitation of subregional and regional interconnectivity. There is tremendous potential for cost sharing in implementing joint projects at subregional and regional levels, particularly the financing and strengthening of sub regional and regional backbones including the introduction of broadband. For instance, as part of the global agenda to improve communications and data transfer technologies, SAT3, a high-capacity optic fibre, was laid along the Western coast of Africa, from Morocco to South Africa. Similarly, a cable has been laid along the entire North African coast up to the Red Sea, with the exception of a small section between Tunisia and Libya. These regions accordingly have access to cheaper and more efficient communication with the rest of the world, than Central or Eastern Africa;

- *Economic Policies* - Establishing common tariffs for ICT products and services across borders as a key component of the harmonization process at sub-regional and regional levels. Developing regional technical and policy framework and regulatory capacity so as to coordinate and harmonise ICT policies and programmes that can enhance a region's competitiveness in the global economy;
- *Regional Cohesion* - ICTs could also catalyse trans-border data flows reducing barriers to personal communications and removing the constraints of national boundaries, distance and time zones. Access to expanded telecommunication networks also reduces the costs of international communication among countries and fosters cross-border information and data exchange; and
- *Promote intra-African and global trade* - Financial co-operation, agricultural development, food security, environment protection, foreign direct investment and improvement in the industrial and manufacturing sectors can be achieved by African countries through regional economic communities (RECs) with information management systems. ICTs have become essential components in the whole chain of trade promotion, facilitation and regional co-operation. Tools such as the Internet promote global markets and give voices to small and medium enterprises and farmers alike, to enable them market and deliver goods and services irrespective of their location.

4.1.2 Challenges

Nevertheless, challenges still remain with respect to strategies at the regional level. Infrastructure, legal and regulatory policies, limited human capacity, cultural and linguistic factors as well as limited political include some of the difficulties.

Consequently, the African continent has the challenge of ensuring an integrated information infrastructure to facilitate greater interconnectivity between countries and interoperability of networks. Such efforts would also resolve local imbalances and inefficiencies through the development of common networks and regional backbones including, the development of high speed direct connection/broadband services for the backbone network, improving universal access and narrowing the digital divide in the "least connected" countries and capacity building and human resource development programs.

A regional approach to the use of ICTs would also support common standards for equipment type-approval procedures to facilitate intra-regional trade in telecommunication equipment. By accelerating efforts to aggregate regional telecommunications requirements and co-ordinating countries' negotiations for networks, applications and funding mechanisms costs could be reduced and access to services improved.

4.2 Critical areas for subregional and regional co-operation

The RECs could for instance undertake the following activities using ICTs to realize regional integration objectives: -

- **Product and service procurement:** joint procurement of telecommunication and communication products and services from international and multinational suppliers can enable African

countries organised sub-regionally and/or regionally, to be in a better position to negotiate important discounts.

- **Sub regional/ regional backbones:** telecommunication and Internet traffic routed outside the continent is at present extremely expensive to the African end user. Putting in place the necessary institutional arrangements and financial investment to create sub regional and regional backbones could facilitate direct connection between African regions and exchange of network information between African Internet Service Providers (ISPs).
- **Common Tariffs:** RECs could play a major role in promoting and facilitating cross border communication through the adoption of regional strategies aimed at the reduction of tariffs and transit charges on telecommunication services and establishing roaming agreements on mobile networks.
- **Compatible standards:** as witnessed in other dynamic economic communities, the adoption of compatible standards for ICT products and services stimulate the market and encourage the private sector to invest in neighbouring regions. This will also facilitate connectivity between various IT systems and thus contribute in the expansion of exchanged information.
- **Promoting Africa's voice in global fora:** Internet and e-commerce related activities are global by nature. This means that minimum common rules should be developed at international level. Though at present, the capacity of Africa to influence these decisions is constrained by a number of factors (limited bargaining power and leverage, absence of a coherent and well articulated African positions that anticipate events), African countries and the RECs must be actively involved in the work of several multilateral organisations such as the International Telecommunications Union (ITU), World Trade Organisation (WTO), World Intellectual Property Office (WIPO), and Organisation for Economic Co-operation and Development (OECD).
- **Networks of regulators:** the transformation of regulatory and legal frameworks in Africa is vital to introduce new regulatory frameworks as well building the capacity of regulators in order to promote policy and regulatory harmonisation that would facilitate cross-border interaction and market enlargement. Regional networks of regulators in the region, such as the Telecommunication Regulatory Association of Southern Africa (TRASA), the West African Telecommunication Regulators Association (WATRA), the Association of African Regulators (AAR) and the Association of Regulators of Information and Communications Technologies for Eastern and Southern Africa (ARICEA) are crucial to improve regulatory capacities at national level particularly in improving universal access and enhancing African capacity to regulate, in the interest of the whole African community.

To further examine the role of RECs in building the African Information Society, the next section focuses on the harmonization of legal frameworks in the ECOWAS sub-region.

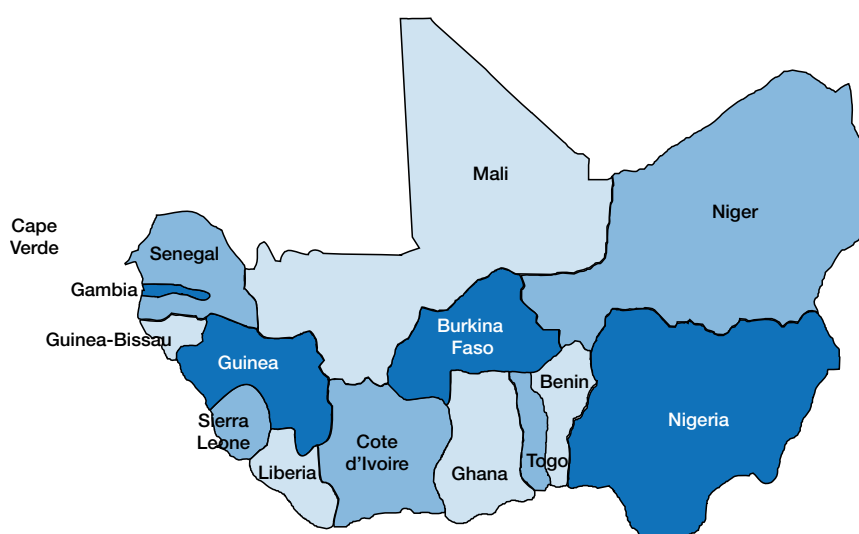
4.3 Harmonization of the Legal Framework: Challenges within Union Economique et Monétaire Ouest Africaine (UEMOA) & Economic Community Of West African States (ECOWAS)

The existence of a legal integration framework constitutes a launching pad for the improvement of the ICT legal environment in the ECOWAS sub-region. Within the prospects of formulating legal texts, it

is possible to follow the example of classic legislation designed by international organizations as well as examples derived from comparative law, which constitute considerable gain in time and money.

The advent of the information age has been accompanied with global challenges, notably cyber-terrorism, information fraud and other criminal acts associated with the utilization of new technology. Consequently, it has become important to establish a security framework for the new environment while promoting its development. As African nations evolve through integration, challenges to the harmonization of legislation between the various sub-regional organizations may give rise to conflict or prescriptive competition. Classic legislation, which serves as the source for the adoption of statutes with little flexibility or adaptation to the African environment could also create obstacles.

Fig. 15



However, there is hope for the efforts undertaken in West Africa towards the creation of harmonized legal framework creating a favourable environment for the development of ICT.

4.3.1 SWOT analysis of the legal environment in West Africa

Currently, West African countries possess major assets in strategic policies and legislation at the national, regional and international levels that can serve as the basis for a harmonized ICT legal framework. These include, national ICT policies and strategies in most of the ECOWAS member States. At the regional level, strategies and plans were defined in the African Regional Action Plan on the Knowledge Economy (ARAPKE) developed during the preparatory process of the World Summit on the Information Society (WSIS) and coordinated by ECA and the African Union (AU).

At the international level, the WSIS Geneva Declaration of Principles and the Action Plan of 2003, as well as the Tunis Agenda and the Tunis Commitments of November 2005, further bind countries. In addition, many countries in the sub-region are committed to the Digital Solidarity Fund launched during the second phase of the WSIS. In West Africa, there is the Regional Economic Programme of UEMOA - 2006-2010, focusing on the telecommunication and ICT sectors as well as the ECOWAS Medium Term Strategic Plan 2004-2007.

Given this background, it is evident that there are national, regional and international ICT legal instruments backed by a national legal and institutional framework within almost all the ECOWAS countries on telecommunication/ICT and the audiovisual sector. Furthermore, some countries also have on-going plans on:

- Management of tele-services (Senegal);
- Industrial property (Cote d'Ivoire and Mali);
- Consumer rights (Cote d'Ivoire);
- Personal data protection (Burkina Faso, Niger, Mali, Cote d'Ivoire and Senegal (plans underway);
- Regulation of the digital identity card (Senegal); and
- Electronic trade and electronic signature and cyber crime (plans in Burkina Faso, Niger, Cote d'Ivoire, Mali and Senegal, restricted contract and electronic signature in Ghana).

4.3.2 Harmonized legal framework in West Africa - strengths

At the regional level, ECOWAS and UEMOA have put in place some conducive guidelines for the development of an Information Society and economy, which include:

- Regulation for electronic payment systems with digital signatures (Regulation 15/2002/CM/UEMOA dated 19th September 2002);
- A directive on the measures to promote banking and utilization of coded means of payment (Memo 08/2002/CM/UEMOA dated 19th September 2002);
- A directive on money laundering from illicit sources irrespective of the transaction (Memo 07/2002/CM/UEMOA dated 19th September 2002); and
- A prescriptive provision, accreditation certificate and metrology on telecommunications and electronic payment (regulation 01/2005/CM/UEMOA and the implementation Regulation 1/2006/COM/UEMOA, 002/2006/COM/UEMOA, 003/2006/COM/UEMOA and 004/2006/COM/UEMOA).

There are also in existence, a series of decisions and directives aimed at organizing the telecommunications sector (Decision 09/2006/CM/UEMOA on the establishment of a National Telecommunication Regulatory Committee of the UEMOA member states) including a directive on a tax transition programme within UEMOA (decision 10/2006 CM/UEMOA) as well as the following directives:

- 01/2006/CM/UEMOA on the harmonization of regulatory policies in the telecommunication sector;
- 02/2006/CM/UEMOA on the harmonization of regimes for network operators and service providers;
- 03/2006/CM/UEMOA on network interconnection and telecommunication services;
- 04/2006/CM/UEMOA on universal service and network performance obligation;
- 05/2006/CM/UEMOA on the harmonization of tariffs for telecommunication services;
- 06/2006/CM/UEMOA on the organization of the general framework cooperation between the national telecommunication regulatory authorities.

UEMOA and ECOWAS have carried out a study on the harmonization of their telecommunication legislation, which led to the adoption of legislation based on the UEMOA directives that were pre-

ciously cited and aimed at the harmonization of ICT market harmonization policies within UEMOA and ECOWAS countries.

In addition, there are rules on intellectual property in the digital universe in the agreement on the review of the Bangui agreement of 2nd March 1977 establishing the African Intellectual Property Organisation that comprised all member states of UEMOA.

4.3.3 Harmonized legal framework in West Africa-weaknesses

Despite the existence of extensive policies and strategies within the UEMOA and ECOWAS sub-region, there are some inherent weaknesses hindering the effective participation of Africa in the knowledge economy.

In sectors with legal frameworks, there is an absence of regulatory literature and guidance for the implementation of the framework. This is particularly true at the national level in most telecommunication sectors and at the community level in the areas of cryptology, proof of signature and electronic payments.

It has been observed that most national legislation has still not been harmonized with the ECOWAS/UEMOA directives. Moreover, some crucial bodies for the implementation of certification and electronic accreditation of the certification providers are non-existent at all levels, primarily in UEMOA.

An unfavourable tax environment also hampers the development of the sector at the ECOWAS/UEMOA and national levels. Generally, taxes are high for service providers and particularly penalize new enterprises. The import tax on computer equipment is also excessive considering the urgent need for West African countries to acquire such equipment. Some countries such as Senegal and Mali are planning to adopt a preferential tax regime for ICT equipment.

Finally, the legal capacities of professionals (magistrates, lawyers and administrators) on ICT are inadequate to ensure the correct implementation in conformity with the spirit of the applicable regulation.

4.3.4 Harmonized legal framework in West Africa - opportunities

Within the prospects of harmonizing the legal framework in the ECOWAS region, consideration should be given to the opportunities provided by the existing frameworks such as the WSIS Action Plans of Geneva and Tunis. This also includes the classic UNCTAD laws on electronic trade, electronic proof and signature, the principles and the guidelines within the WTO framework.

At the regional and national levels, NEPAD Short-term Action Plan on ICT, the ECOWAS strategic plan 2004-2007 and ARAPKE are all action frameworks that can be built upon.

4.3.5 Harmonized legal framework in West Africa - threats

In the face of an increasing digital divide, the main threats confronting Africa are:

- Marginalisation of Africa in the Information Society at the political, economic and scientific levels;
- Growing vulnerability at the economic, political and economic level;
- Risk associated with the curtailment of freedom which can harm the rights of citizens, consumers as well as the intellectual property rights of creators and innovators;
- Emergence of new forms of marginalisation particularly affecting women, the handicapped, the youths and the Diaspora; and
- Development of cyber crime in the trade sector and morals without taking into account particularly the harmful effect on the security of information systems.

4.4 Towards a harmonized and favourable ICT legal framework in West Africa

A legal framework for the development of the ICT sector requires the formulation and adoption of the following:

- E-commerce/e-business legislation;
- Electronic communication and governance (telecommunication, audiovisual, e-government); and
- Protection of the value systems of the information society (cyber crime in general and money laundering in particular).

However, it will be useful to put in place the general framework for the legal harmonization of the ICT sector to serve as the main reference point for future projects. Its objectives will be to ensure coherence and avoid disruptions that could affect it from other competitive projects that have been developed by other regions pursuing integration.

Currently, the guidelines that have been adopted by UEMOA/ECOWAS restrict ICT to the telecommunications sector. A complimentary or a summary version can lead to the design of the outline for a harmonized ICT framework in the sub-region. The objective will be to:

- Determine the definition and the characteristics of the Information Society;
- State precisely the fundamental principles of the Information Society;
- Establish the institutional framework by the creation of bodies responsible for the coordination of the legislative harmonization strategies on ICT;
- Identify the rights, roles and responsibilities of various stakeholders (regional organizations, state, civil society organizations, private sector, individuals);
- Clarify the basis of the partnership (national, decentralized level, regional, international); and
- Propose incentives (fiscal, customs, trade etc) for the development of ICT.

4.4.1 Framework for e-commerce

The main obstacles preventing the development of e-commerce in the UEMOA/ECOWAS sub-region are:

- Limited regulations on data protection and no recognition for digital signatures with the exception of payments within UEMOA:

- Absence of specific legal rules protecting consumers, intellectual property, personal data and information systems;
- Lack of specific legislation on teleservices and telework;
- Management of on- line publicity; and
- Absence of tax appropriate tax and customs legislation on e-commerce.

In addition to telecommunications and competition, the regulations on e-commerce should promote the use of modern methods of communication and the storage of data in accordance with internationally accepted standards. This requirement is first and foremost reflected through the adoption of specific rules on training and the implementation of e-contracts in general and some specific contracts such as, the transportation of goods, tele-services and tele-work. This is followed by the adoption of rules on proof and electronic signature and finally, by the adoption of harmonized rules between UEMOA and ECOWAS on electronic payments, which take into consideration activities undertaken by UEMOA in this respect. In addition to these areas on the development of e-commerce, there is need for policies on:

- Protection of consumers by adapting rules in the transaction categories which are wholly or partially effective on - line;
- Protection of intellectual property taking into consideration the Bangui Accord which is binding on the African Intellectual Property Organization (AIPO) member states and the ADPIC (Accord sur les aspects des droits de propriété intellectuelle touchant au commerce) that was adopted by WTO;
- Protection of personal data so as address the challenges and the threats from the collection and use (storage, processing and development) of personal data. In order to achieve this goal, it becomes necessary to:
 - Determine the regimes on the collection, storage, processing and utilization of personal data (rights, obligations, procedures) in general and in specific sectors such as health, teleservices and national security;
 - Establish the institutional framework for the regimes; and
 - Protect the information system in order to ensure the security of the infrastructure, sites and personnel in the public and private sectors.

The criminal protection of the value system is a requirement dictated by security conditions. It is reflected by an appropriate criminal legislation against cyber crime in general and money laundering in particular. The regulation should reflect a balance, which resolves the tensions between the bargained values (economy) and the non-bargained values (human dignity).

4.4.2 Cyber crime

In order to identify cyber criminals in the Information Society, it is crucial that the harmonization process is integrated into improvements of the existing criminal codes of UEMOA/ECOWAS member States and facilitated through a conventional law such as the: -

- Adaptation of the conventional offences in ICT (infringement of individual rights and breach of contract;
- Determination of offences against confidentiality, integrity and availability of computer data;
- Definition of computer offences (falsification, fraud);

- Definition of offences in relation with content (intellectual property);
- Adoption of guidelines so that harmonized penalties could be put in place and are adapted to new offences;
- Existence of legal measures for the prevention, pursuit and suppression of cyber crimes. This requires: -
 - Adjustment of the conventional procedure in relation with ICT; and
 - Introduction of new cooperation norms on cyber crime at the subregional and international levels.

4.4.3 Money laundering

In UEMOA, the directive on money laundering is a mechanism for the modernization of the electronic payment system as it contributes to decreasing systemic risks. It comprehensively deals with conventional money laundering as well as money laundering using electronic devices.

In comparison, the fight against money laundering within ECOWAS, is directed towards anti-terrorism, drug trafficking and the protection of financial and banking systems and the national economies of the member States.

Harmonization efforts should therefore be geared towards establishing greater linkages between the two mechanisms and reflected in the telecommunication sector through sharing of experiences.

4.5 Rationale for selecting the ECOWAS-UEMOA area

Given that all UEMOA member States are members of ECOWAS, there is need to link and integrate the harmonization efforts in West Africa between the French-and English-speaking countries. Beyond the linguistic differences, there are differences in the legal culture, which dates back to the Romano-German tradition (written law) and the Anglo-Saxon law (common law).

These two systems have been competing with each other for a long time and attempts are being undertaken to harmonise the legal systems for telecommunication with support from the European Union and the International Telecommunications Union (ITU) on the adoption of guidelines for the harmonization of policies governing ICT markets within UEMOA and ECOWAS.

The necessity to manage ICT has therefore contributed to the development of cooperation between the sub-regional organizations in West Africa through the establishment of a de facto conventional framework, l'Organisation pour l'Harmonisation en Afrique du Droit des Affaires (UEMOA-OHADA). However, notwithstanding the relevance of the UEMOA-OHADA, it is important to take into account that Africa is a variable geographic integration zone. Indeed, the membership of States to several and sometimes competing integration organizations warrants harmonisation built on rational and coherent policies for effectiveness.

Two advantages could however be derived from the integrating process if placed within the continental objectives of AISI. The first is that, UEMOA can serve as a prime-mover within ECOWAS to share

its achievements and experiences in the harmonization of ICT legislation. Furthermore, UEMOA can serve as a force to put forward proposals within UEMOA and OHADA so that the French-speaking countries can benefit from the enriching experiences of the ECOWAS English speaking countries. This approach is perfectly in line with the development of OHADA, which is opening up to the English-speaking world.

4.5.1 Harmonizing instruments

With the prospects of harmonizing legislations in UEMOA/ECOWAS, it will not be necessary “to re-invent the wheel”. It is therefore crucial to use model laws and best practices as examples and produce an African ICT law which is integrated into the global context and protecting the interests of African stakeholders.

In addition to these foreign legislations (particularly European, American and Canadian) and best practices, there are also some conventional laws proposed by the United Nations Commission on International Trade Law (UNICTRAL) on e-commerce, e-contract and digital signature which can be used as a basis for the regulation of e-business rights within UEMOA and ECOWAS. In addition, there are also the laws or draft laws from African countries such as Tunisia, Mauritius, Senegal, Burkina Faso, Niger, Ghana and Cape Verde.

These examples will contribute considerably to harmonization of terminology in this area and the challenge is that each legal document provides an opportunity for the harmonization of terminology within UEMOA and ECOWAS conforming to norms and international practices.

UEMOA and ECOWAS currently operate two existing legal systems that use various terminologies and do not have the same sources of community law. ECOWAS resorts to decisions taken by Heads of States of Governments’ and regulations and recommendations made by the Council of Ministers (article 6 and 5 of the Revised Treaty). On the other hand, UEMOA has a more diversified system with the additional decisions taken by Heads of States of Governments’ at the time when the Council of Ministers agree on regulations, directives, decisions, recommendations or opinions, followed by the Committee on Regulations and Decisions who formulate opinions or recommendations (Article 42 and s. of the revised UEMOA Treaty).

There is need to select the best documentation and reporting to back-up the harmonization process. Once a recommendation has been adopted by ECOWAS, it needs to be integrated into the legal system of UEMOA as well as into the legal system of member States. The formula of “guidelines” which is used in the harmonization of policies governing ICT markets within UEMOA and ECOWAS is relevant as it proposes a legislation model. It is therefore crucial to ensure that harmonization is finally achieved and incorporated into the laws of the member States. Moreover, it should be noted that the change in the status of ECOWAS into a Commission would ensure smoother implementation of decisions taken by the institution.

4.5.2 Harmonization and domestic law

The definition of a harmonious legal framework requires the harmonization of domestic laws with the ECOWAS Community law. Within the context of harmonization, it is not superfluous to envisage in a dynamic sector like ICT, a watchdog mechanism responsible for the monitoring and evaluation of the standards to ensure continuous improvement. This objective could be included in the definition of the general institutional framework on harmonization.

Action should therefore be at two levels:

1. At the sub-regional level, there is need to integrate the harmonized law within the legal system of the two sub-regional organizations taking into consideration the legal regime and the validity of the legal decisions taken by the competent authorities; and
2. At the national level, countries can include in their domestic system national legislation conforming with ECOWAS Community, directives without going through an intermediary stage, from UEMOA to ECOWAS to the member States. Thus UEMOA could adopt regulations from the harmonious framework and apply them directly in member States or still adopt the directives with transposition laws, which will be adopted as they are by the member States.

4.6 The way forward

In order to arrive at concrete actions, ECOWAS and UEMOA in cooperation with ECA held a workshop on the legal framework for e-commerce and the harmonized legal framework on ICT for West Africa.

This event brought together experts who exchanged views on the present state of the regulatory framework in Africa, the issues at stake and the prospects particularly in relation to the West African integration programmes. The discussions provided an opportunity for the participants to map out the way forward for the formulation of a harmonized legal framework for ICT in West Africa, with support for e-commerce and cyber-crime as concrete actions.

A follow-up committee composed of ECA, UEMOA, ECOWAS, BCEAO (Banque Centrale des Etats de l'Afrique de l'Ouest), and the host country (Burkina Faso) should monitor the implementation of the conclusions and recommendations of the workshop. A website will be established by ECA to facilitate contacts between the members of the follow up committee and the consultants during the process of formulating the legal framework.

Information, Knowledge-Management and Capacity Building

The Role of the Information Technology Centre for Africa (ITCA)

5.1 Overview

Under the framework of the AISI, ECA has been supporting its member States to harness ICT for development. A number of countries have benefited from such support and embarked on the development of national e-strategies which provide a 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.

To contribute to the realization of the AISI and in turn, address the needs of policy makers on challenges and benefits of ICTs for Africa's development, ECA established the Information Technology Centre for Africa (ITCA) in 1999.

The ITCA is an ICT focused exhibition and learning centre promoting networking and capacity building on emerging Information Society issues and enhancing the awareness and participation of African policy makers in championing the diffusion and utilization of ICTs for development in Africa. The centre serves as a crucial mechanism to maximize current and future partnership programs in the use of ICTs as a means to accelerate Africa's development. In this role, the ITCA will continue to engage the private sector to fully participate in showcasing successful ICT applications relevant to Africa's development and

utilization of its programmes and services to promote private sector investment.

The physical location of the ITCA, at the ECA's United Nations Conference Centre (UNCC), renders its services easily accessible to conference participants attending various events annually. ICT exhibitions are also coordinated and showcased by the ITCA during major events. On-site as well as on-line training services are availed for policy makers and other stakeholders on ICT skills and Information Society issues.

In the ECA Business Plan 2007-2009¹⁴¹⁴, there is recognition that the effectiveness and future relevance of the ECA depends upon its capacity to successfully position itself as a distinctive, value-added hub in the network of African development information and knowledge exchange. ECA's Knowledge Management (KM) strategy reflects a renewed emphasis on knowledge networking focusing on information, collaboration and peer interactions, supplemented by progressive efforts of integrating knowledge sharing fully into work processes. Major activities will be focused on enhancing knowledge content in ECA operations and outputs, providing knowledge services to partners and clients and becoming a Centre of Excellence on knowledge on Africa's development. Through effective KM, ECA will deliver continuous improvement in performance

¹⁴ <http://www.uneca.org/>

and standards of service delivery and global outreach and underpin its efforts to be a repository of development-related information on Africa.

The ITCA, in its role in the production and management of information and knowledge resources, therefore represents one of the major long term initiatives intended to facilitate the transformation of ECA into a knowledge organization.

5.2 ITCA products and services

The Information Technology Centre for Africa focuses on providing highly differentiated complementary information and knowledge services relevant to the continent's development agenda. Three-core services provided at ITCA are exhibition, on-site and on-line learning and outreach services.

5.2.1 ICT Exhibition Centre

The ICT exhibition component showcases informative and interactive multi-media exhibits specifically aimed at creating awareness of the major benefits and crucial role of ICTs amongst decision-makers in Africa.

The ITCA also provides a unique venue for member States and partners to exhibit development-oriented technologies. Some of the exhibits have included:¹⁵

- The Canada Fund for Africa Event (2005) highlighting a number of AISI activities that were being supported directly and/or indirectly with Canadian funding;
- The ECA exhibition stand at the ITU Telecom Africa Conference (2004);
- The International Conference on ICTs for Development, Education and Training (2006);
- The Forum on ICTs, Trade & Economic Growth (2006);
- The Second Forum on African Statistical Development (FASDEV II), (2006);
- The Fourth Meeting of the Committee on Development Information (CODI IV), (2005) Second Africa Regional Preparatory Conference for the WSIS (2005); and
- The International Symposium on ICT Education and Application in Developing Countries, (2004).

Touch-screen Kiosk for Addis Ababa Local Administration

A request from the Policy Study and Planning Commission of the Addis Ababa City Government identified land administration, infrastructure and housing, trade registration and cooperatives as the offices in the Nefas Silk Lafto Sub-City that could benefit from the introduction of ICT applications in facilitating public services. As a result, the land administration authority was selected as a pilot for the initial phase of using information kiosks to provide public services.

The touch-screen kiosk is a unique and tangible demonstration of an ICT application in a specific e-government context - land administration.

¹⁵ <http://www.uneca.org/itca/>

The kiosk provides voice-enabled information on the type of services available at the authority. This includes documentation and forms that clients are required to complete, service charges for various services and the physical location of the offices (room numbers) for particular services.

At the launch, users/clients alluded to the usefulness of the kiosk in terms of information dissemination and a marked reduction in queuing times:

“It contains useful and valuable information that we do not have to queue up for any more. The kiosk will solve the problem faced by many clients who normally wait in long queues for many hours for basic information often, without much luck” - Ms. Zenebech Demissie, a client.

Fig. 16



For staff, the installation of the kiosk would lead to efficiency through undivided attention to the core business of processing requests as opposed to time-consuming document completion support. The ITCA will continuously upgrade the system and expand the administrative services on offer.

Box 16: The African e-Learning Initiative

The African e-Learning Initiative is the extension of ongoing onsite capacity building activities beyond the boundaries of the campus in Addis Ababa, Ethiopia. Partnerships have been forged to **facilitate the training of African policy makers and other stakeholders on the role of ICTs for socio-economic development** with reputed training institutions like the African Institute of Economic Development and Planning (IIDEP) and the Diplo Foundation online and blended learning.

Some of the on-line courses include:

- An Internet Governance (IG) on-line course – this module was developed to enable African policymakers to effectively participate in the IG process and thirty-six policymakers from 18 African countries undertook the course - Angola, Cameroon, Egypt, Ethiopia, The Gambia, Ghana, Kenya, Mozambique, Nigeria, Rwanda, Sierra Leone, South Africa, Sudan, Tanzania, Uganda, Togo, Zambia, and Zimbabwe. The course was developed by ECA and supported by the DiPLO Foundation of Malta, the Canadian ePolicy Resource Centre (CePRC) and ICANN;
- ICT awareness course - course module is intended to provide basic skills in utilising ICT tools for increased productivity and efficiency for the general public; and
- ICT Policies and e-Strategies online course - course module under development after an intensive one-week **e-learning capacity building workshop** for ICT, Science and Technology staff involved in the development and maintenance of online learning systems. The online course is targeted at African policymakers and public service employees. The workshop was organized by ISTD with the support of the Africa Node of the Global ePolicy Resource Network (ePol-NET) and Canadian e-Policy Resource Centre (CePRC) and was conducted by a team of experts from the Blended Learning Centre (BLC) of the Canadian School of Public Services (CSPS).

5.2.2 On-site and On-line Learning Centre

The center has developed a wide spectrum of training activities providing African policymakers and other stakeholders with practical examples of how ICTs can serve as an engine for growth in Africa. Key stakeholders from the region have received training on ICT issues such as Internet use, ICT and the media, Internetworking technology, telemedicine, e-commerce, etc. On-site workshops and seminars are provided to promote awareness on the importance of ICT in economic growth and competitiveness.

5.2.2.1 Capacity building for policy makers

Training of African Ambassadors

This training activity was organized in response to requests from several African Ambassadors based in Addis Ababa and Lusaka. The activity, which focused on Information Society issues and ICT skills, was attended by Ambassadors accredited to Ethiopia/AU/ECA and Ambassadors of countries accredited to Zambia. These included, Burkina Faso, Burundi, Chad, Congo, Eritrea, Equatorial Guinea, Guinea, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mauritius, Namibia, Niger, Rwanda, Senegal, Sierra Leone, Tanzania, Tunisia, Uganda and Zimbabwe.

On the workshop outputs, His Excellency Mr. Marcus M. Kofa, Ambassador Extraordinary and Plenipotentiary of the Republic of Liberia to Ethiopia and Permanent Representative to the African Union stated that,

“It is now easier for me to locate information of any kind on the web. I am very pleased with this training which will now facilitate my work and I thank the ITCA for making it possible for us to join the millions of computer users worldwide.”

H. E. Salih Omer, Ambassador of the Embassy of the State of Eritrea, Addis Ababa further stated that,

“As high tech leaves nothing to chance, it has become not a matter of chance, but of necessity to acquaint myself with ICT that could empower my future with up to date information. I seize this opportunity to thank the ECA that took an initiative through its ITCA to enlighten diplomats on this field which will help in their decision making processes.”

Training African Parliamentarians

In an effort to build the capacity of African stakeholders, thirty-six Ethiopian Members of Parliament received a three-month ECA-sponsored intensive training on ICTs with a specific focus on e-strategies for development. The activity was held at the ITCA and comprised of a series of lectures on ICT policy issues and hands-on approaches to using ICT applications to enhance legislators' work.

In the same vein, ECA launched an ICT awareness workshop series for African Parliamentarians enrolling MP's from Ethiopia. At total of eighty MP's from the various Standing Committees of the Ethio-

pian Parliament have since benefited from the training. This training is also being extended to other member States.

5.2.2.2 Capacity building for stakeholders

Training African Women in networking technology

In partnership with Cisco Systems Incorporated and InfoDev of the World Bank, ITCA launched a training course for African women in Internet networking technology, in line with the Cisco Networking Academy Program. The course also addressed the design of local and wide area networks, configuration of computers and troubleshooting through instruction and hands-on laboratory sessions. Other course topics included digital divide challenges, ICT policies awareness, gender mainstreaming, entrepreneurship and business management.

The initial training course was organized for Anglophone African countries followed later by a course for Francophone African countries. A number of countries benefited from the training, namely, Benin, Burkina Faso, Burundi, Cameroon, Chad, Comoros, Congo (Brazzaville), Congo (DRC), Côte d'Ivoire, Djibouti, Ethiopia, The Gambia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mauritania, Mozambique, Namibia, Niger, Sierra Leone, Nigeria, Rwanda, South Africa, Senegal, Swaziland, Tanzania, Togo, Uganda and Zambia.

Training Web-based Journalism for members of the Ethiopian Media Women Association (EMWA)

A five-day capacity building training programme for Ethiopian Media Women Association (EMWA) professionals was conducted at the ITCA in August 2007.

The programme content included, basic familiarization on Internet services and tools, search engines, web-site design and extensive hands-on training on web page development and blogging. Fifteen members of EMWA had previously benefited from a similar course in September 2004.

This training activity was organized as a response to a request from EMWA and was supported by the Africa Node of the Global ePolicy Resource Network (ePol-NET) and the Government of Japan.

5.2.2.3 Strengthening ICT applications in socio-economic sectors

Training of Ethiopian Customs Authority Officers

As a response to a request from the Government of Ethiopia for capacity building of Ethiopian Customs Authority staff to “effectively implement and maintain the Automated System for Customs Data” (ASYCUDA - UNCTAD software product), ECA launched a four-month phased capacity building training workshop. The ASYCUDA is a computerized management tool handling manifests, customs declarations, accounting, transit and suspense processes. The system is also capable of generating trade data that can be used for statistical economic analysis and provides Electronic Data Interchange (EDI) between traders and customs. The phased programme commenced with the initial phase of building

the skills of the customs officers in supporting computer hardware, operating systems and networking. The second phase was intended to enhance skills in web-design, database and application development technologies. The final phase was aimed at introducing IT project management and Geoinformation Services (GIS) tools for surveillance and enforcement.

At the launch of the activity, the Director of ICT, Science and Technology Ms. Aida Opoku-Mensah emphasised that the programme was two-pronged in as much as it addressed the benefits associated with the adoption and use ICTs for trade and also, for public administration (e-Government).

The Director stated that,

“The important role ICTs play in trade facilitation cannot be over emphasized; the numbers of hours or days that can be cut at ports due to the introduction of ICTs in customs processes all contribute to measuring the readiness of countries for international trade transactions. The usage of ICTs by Ethiopian Customs is an e-government objective aimed at increasing efficiency and effectiveness in the service delivery of a public institution.”

To date, more than thirty-five customs officers from Addis Ababa and from various customs ports throughout the country have received training.

Some comments from participants:

“ECA has built my capacity in the area of A+ and Network+ skills and knowledge and I am now in a position to keep up with the challenges in this area” - Tigiste Yigletu, Addis Ababa Customs.

Fig. 17



Fig. 18



“The training contributed a great deal since ASYCUDA implementation needs knowledge on how to implement WAN’s and to configure vital devices to connect local and wide area networks” - Ephrem Bezabeh, Dembel Branch - Addis Ababa.

Telemedicine training for medical doctors

A two-week telemedicine training programme for over 20 Ethiopian medical doctors drawn from ten hospitals in Addis Ababa and regional towns was conducted in August 2004 at the ITCA. Trainees had already undergone basic Internet training in preparation for the telemedicine training.

The training was undertaken as part of a telemedicine pilot project in Ethiopia in which ECA is collaborating with the ITU, UNESCO, Ministry of Health Ethiopia, Ethiopian Telecom Corporation (ETC) and the Addis Ababa University Faculty of Medicine. This support and collaboration in the implementation of the telemedicine project would, with time, be extended to other medical institutions outside Addis Ababa.

This initiative, which was an actualization of ECA's ICT for Development work programme, implemented through the African Information Society Initiative (AISII), highlighted the role of ICTs in development in general and in the health sector in particular.

Fig. 19



Best telemedicine practices in Africa were cited from countries such as Mali – a pilot telemedicine project which seeks to provide an online network for all hospitals and health districts in the country; Mozambique - one of the first telemedicine links in Africa was established in 1999 between the central hospitals of Beira and Maputo; Uganda – telemedicine services include exchange of data, audio and diagnostic image consultation.

E-commerce training for SME's

The Information Technology Centre for Africa (ITCA), in partnership with PEOPLELink¹⁶¹⁶, conducted an e-commerce workshop in 2004. The workshop was based on the CatGen Software, a general-purpose web catalog building tool that allows small to medium-sized businesses (SMEs) to deploy both B2B and B2C e-commerce web sites. Twelve participants representing different SMEs selected from the Addis Ababa Chamber of Commerce and representatives from Ministry of Trade and Industry attended the training.

Participants were expected to promote a network of businesses in Ethiopia and beyond by forging partnerships with PEOPLELink with more than 200000 traders from 42 countries currently posting more than 20000 items and services using the CatGen Software.

Fifth African Development Forum (ADF V):¹⁷ e-Skills for Youth Entrepreneurship

An intensive one-day skills building training programme on e-commerce and blogging was conducted for more than 55 African youth who attended the 5th African Development Forum in November 2006. The objective of the activity was to provide some basic understanding of the link between ICT and enterprise development and to introduce participants to the development and management of blogs.

¹⁶ <http://www.uneca.org/adf/>

¹⁷ www.Peoplink.org

The training was comprised of lectures and hands-on activities and was jointly sponsored by ECA, the Swiss Development Cooperation, the Global Knowledge Partnership (GKP), the ePol-NET and the Canadian e-Policy Resource Centre (CePRC).

Participants underscored the importance of this training,

“I believe that ICT can be a great way to develop one self. Whatever business one is in, by using ICT, one can make themselves and their business a part of a larger world community” – Ms. Mentwab Abiy of Dot Ethiopia.

On ICT and Youth entrepreneurship, Houda Chakiri of Ifrane Techno-park Morocco stated that,

“Young entrepreneurs are making the future of Africa and there are a lot of opportunities in the ICT field - all what is needed is the willingness to go ahead.”

Stakeholders, Outreach and Communication

6.1 Background

The implementation of the African Information Society Initiative (AISI) launched in 1996 is translated at national and sub-regional levels in the development of national, regional and sectoral information and communication infrastructure policies and plans. To date, requests have repeatedly been made to the ECA by member States, RECs and other stakeholders for support that would facilitate effective involvement in matters relating to Information Society. The need for this involvement has grown following the assignment of specific roles to United Nations regional commissions by both the Geneva and Tunis phases of the WSIS.

These requests are the result of the implementation of national strategies that do not deliver AISI/WSIS goals without the express involvement of national level key stakeholders such as the media, private actors, academia, civil society organizations, parliaments and youth and women's groups. Understanding that individual sectors cannot overcome the challenges of building an inclusive information society, stakeholder involvement is a key component of efforts to harness different capabilities and capacities and the required resources, ensuring community buy-in and more effective implementation. Participa-

tion enhances compliance when stakeholders are more knowledgeable about, committed to and supportive of policies and strategies that they participated in the formulation of. "With involvement comes understanding; with understanding comes public support and commitment." "Community Involvement in Marine Protected Areas"

In addition to the benefits of increased compliance and ownership, it is the stakeholder's right to be involved in policy formulation, implementation, monitoring and review. This practice is firmly in consonance with the Universal Declaration of Human Rights Paris 1948, Art. 21; "Everyone has the right to take part in the government of his country, directly or through freely chosen representatives." Former Secretary General of the UN, Kofi Annan, also highlighted this need: "Nowadays governments realize that they cannot do everything, that society's objectives can only be achieved through cooperation and alliances with a wide range of actors, including the private sector, civil society and other groups."

Consequently the ECA, since the inception of the AISI, has been working to strengthen national ICT actors, groups and associations' capacity to be fully part of and contribute to the African Information Society.

6.2 WSIS and stakeholders involvement in the information society

The WSIS\Geneva established a balanced relationship between Governments and other stakeholders through the Declaration of Principles 20 that stated: “Governments, as well as private sector, civil society and the United Nations and other international organizations have an important role and responsibility in the development of the Information Society and, as appropriate, in decision-making processes. Building a people-centered Information Society is a joint effort which requires cooperation and partnership among all stakeholders.” In Action Plan Paragraph C1 it states: “The effective participation of governments and all stakeholders is vital in developing the Information Society requiring cooperation and partnerships among all of them:

- a) All countries should encourage the development of national e-Strategies, including the necessary human capacity building, by 2005, taking into account different national circumstances.
- b) Initiate at the national level a structured dialogue involving all relevant stakeholders, including through public/private partnerships, in devising e-Strategies for the Information Society and for the exchange of best practices.
- c) In developing and implementing national e-Strategies, stakeholders should take into consideration local, regional and national needs and concerns from the perspective of sustainability. The private sector should be engaged in concrete projects to develop the Information Society at local, regional and national levels.
- d) Every nation is encouraged to establish at least one functioning Public/Private Partnership (PPP) or Multi-Sector Partnership (MSP), by 2005 as a showcase for future action.”

Fig. 20



6.3 Stakeholders' role in the Information Society

The ECA, with the support of its development partners, has undertaken capacity building activities, networking and multi-stakeholder partnership strategy promotion.

6.3.1 Participation in Policy Formulation

During the policy formulation process, from the baseline study stage to those of the national, Sub-regional and sectoral e-Strategy validation, all stakeholders are consulted and invited to meetings and workshops where regular and structured exchanges of views and information are facilitated. These include government bodies and parastatals, private actors, national and international regulatory bodies, telecommunication operators, NGOs and civil Society, members of Parliament, academia, the media, research centers, IT experts, regional and international organizations.

Box 17: Guidelines on Stakeholders Consultation

Involve people early: The earlier stakeholders are involved, the more opportunity they have to influence the outcomes.

Communicate: This should be two-way, the opinions of others are listened to, valued and a shared meaning is sought. The essence of communication is to improve knowledge of an issue and often convergence of opinion about it. Where disagreement exists the reasons for this will be known.

Provide information and education: Providing information and education in appropriate forms helps stakeholders make decisions based on a sound understanding of the issues.

Allow adequate time: It is important to provide sufficient time at the onset to build relationships, understand and explore the issues, agree on, communicate regularly and exchange information and ideas and consider possible solutions and their implications.

Build in flexibility: Plans must evolve as stakeholder's understanding evolves and as more information becomes available. Periodic reviews should be built into the process.

Source: World Conservation Union (IUCN)

It is of great importance that the rationale and premises on which general policy framework is founded are well understood by all stakeholders and that their legitimate concerns and preoccupations are taken into consideration with the objective of strengthening local ownership and participation, in addition to ensuring that there is an operational implementation framework.

More than three thousand nine hundred (3,900) stakeholders have participated in the AISI implementation-related NICI/RICI/SICI validation workshops and approximately six thousand and four hundred (6,400) have been consulted to date.

6.3.2 Forums, Conferences, Workshops and Meetings on the Information Society

This systematic approach to the involvement of stakeholder groups in policy formulation is extended to national, sub-regional and international meetings, forums and conferences on the Information Society. The objectives are numerous: build capacity, create awareness of issues and promote participation in decision-making processes. In this particular regard, all stakeholders lauded ECA for the role it played as the technical coordinator of the African World Summit on Information Society (WSIS) process. As

technical coordinator, the ECA led the Africa Regional WSIS conferences, workshops and prepcom meetings, ensuring that the event involved the participation of all major African stakeholders.

In addition, capacity building activities were organized as part of the negotiation strategy ensuring that Africa spoke with a unified voice and effectively lobbied for her agenda. African stakeholders' contributions had a strong impact on the outcomes of both phases of the WSIS. The Bamako Declaration was the first valuable contribution to the second phase; it led to the Accra Commitment and finally served as a roadmap to Tunis and beyond, with the adoption by Member States of the Africa Regional Plan of Action on the Knowledge Economy (ARAPKE). More than ten thousand African stakeholders participated in the deliberations and contributed to WSIS outcomes and ARAPKE.

By helping Member States put such a process in motion, ECA took a major step toward ensuring that e-Strategies are responsive to community interests and values locally owned, demand driven and have socioeconomic development as their goal.

6.3.3 Collaborative research-and-development in emerging issues in the Information Society

Another area where the contribution of stakeholder groups is highly rated is research and development (R & D) in emerging issues in information society. Today, information and communication technology forms the basis of our society and of the power required for competitiveness. Faced with the new challenge of ensuring an absence of discrimination and extensive social and economic inclusion of the widest possible spectrum of the end-user population, collaborative R&D becomes a critical factor. R&D has been considered one of the priorities for building an inclusive regional Information Society and related activities have been undertaken by the ECA. Systematic and thorough thematic needs assessments are conducted with stakeholder groups for the purpose of identifying synergies, overlaps, needs and gaps within the Information Society -building process.

Box 18: 1st Phase: Network Outreach/Institutionalization

The first step in engaging a stakeholder network is to define the network and to bring stakeholders together. This involves defining the issue, problem or opportunity, and identifying the stakeholders. Once stakeholders have been brought together, their initial task is to agree on principles and process. The work of the Network Outreach focuses on the following questions:

- What is the issue, problem or opportunity?
- How complex is it?
- Who has an interest?
- Are they willing to be involved? How?
- What is our goal for engaging others (inclusion, learning, innovation)?
- What principles of engagement will we follow?

Source: Ann C. Svendsen, M.A, Centre for Innovation in Management at Simon Fraser University, British Columbia
www.cim.sfu.ca

6.3.4 Systemic participation: group networking

To sustain the involvement of stakeholder groups in AISI implementation at national, sectoral, sub-regional and global levels, the ECA continued to provide Member States and development associations with support for the formation of stakeholder networks. National, sub-regional and international networks provide a mechanism for broadening and sustaining the modalities for stakeholders' participation and for enabling them to go beyond information and consultation, to participation in decision-making. They can serve as a vehicle for peer review, sharing of ideas, communication and opportunities for continuous personal and professional development. In well-structured networks, issues and problems are debated and reframed as required. More than 30 stakeholder networks have been formed at national, sub-regional and global levels to provide support to NICI, RICI and WSIS policies and plans. Parliamentarians, private sector actors, media, women and youth group stakeholder networks were created in Benin, the Gambia, Niger, Rwanda, Swaziland and Tanzania. Global civil society, youth and media networks have also been formed.

Box 19: 2nd Phase: Network development: The Learning Phase

During "Learning," members develop a shared understanding of the network of relationships and interdependencies that connect them, and of the larger context that affects them all. Members reflect and think together, willingly suspending their assumptions in a spirit of inquiry and curiosity. This involves answering the following types of questions:

- What are the stories and history of the people in this system?
- What do we know about the issue, challenge or opportunity that brings us together?
- What external factors, events or potential developments concern the well-being of this network now or in the future?
- What is working or not working in the current situation?
- What root causes, patterns or assumptions underlie this system?
- Where is the common ground among us? What are the differences in perspectives, interests and needs?

Most of these networks were formed less than two years ago and are at the institutional framework promotion stage, which is the first stage in the process of AISI stakeholder network development. At this stage, activities of the network include the development of plans of action, adoption of coordination mechanisms, membership drives and advocacy to create the necessary enabling collaborative environment with decision-makers. Intensive capacity-building activities are also promoted through various channels.

These groups are expected to move to their second development phase in the third year where more activities related to their role are achieved such as ICT4D projects, initiatives, partnerships and collaboration framework development before the mature stage. This consolidation stage of network expertise leads to participation in policy formulation, implementation, monitoring and review.

All members can benefit from continuous development opportunities as a direct result of their effective involvement in the Information Society-building process.

Box 20: 3rd Phase: Innovation/implementation/consolidation

When high stakes exist, stakeholders have recognized their interdependence and when the system that connects the issue is commonly understood in depth, a shift occurs and people take responsibility for the whole.

During innovation attention should be focused on solutions and actions, summarized by of the following questions:

- What do we yearn for?
- What is our preferred vision of the future?
- What is the common purpose that unites us?
- How can we co-create the future all desire?
- What might we do? What will we do?
- How do we organize for action?

6.3.4.1 Networking towards collaborative, multi-partnership framework development

One of the main objectives of networking strategy is to promote collaboration among various groups, the Multi-Stakeholders Partnerships (MSP), which provides a means for stakeholders to complement, rather than replace, government resources that encourage a transfer valuable of skills and experiences.

This is a crucial means to:

- Enhance public sector capacity to administer the challenges of inclusive Information Society development;
- Identify innovative methods to pool resources and talents based on each party's core strengths, and designed and maintained to deliver mutual benefit for all;
- Promote a holistic approach to development and better governance;
- Aggregate resources and competencies to resolve the key challenges of ICT as an enabler of sustainable development;
- Share risk, cost and mutual benefit and establishing a powerful joint e-Strategies problem-solving and project implementation;
- Increase the ownership of an implementation effort, thereby enhancing the effort's potential for success; and
- Implement IC4TD activities in rural and urban areas for community wealth creation.

6.4 Capacity-building activities to support stakeholder and network participation

The primary objective of capacity building activities is to facilitate and support the development of individuals, institutions and communities for their effective participation in AISI implementation. The Commission has continued to undertake stakeholder capacity building activities including e-Discussions; organization of meetings, conferences, exchange programmes, and study trips; access to relevant information and knowledge resources.

6.5 Outreach and Communication

The need for outreach and communication came out of the need to address the role of ICTs in advancing Africa's development. This required society to develop a better under-standing of the new means

of interaction offered by the global information infrastructure. Furthermore, African capacities to analyse, assess, and create greater awareness has to be increased as active participant in the global information society.

Box 21: The AISI Outreach objectives include:

- Creating greater awareness on the information society within the AISI framework;
- Stimulating national debate through the production of targeted outputs and joint collaboration with the media in various countries;
- Sensitising decision and policy-makers on ICT issues and trends and implications for the development process;
- Encouraging various stakeholders and partners in the development process to develop the information society across Africa;
- Developing strategies for greater access to the information society by various groups including, women, youth, the poor and disadvantaged
- Encouraging the development of appropriate ICT socio-economic frameworks that nurture innovative and creative applications to suit the African context.

The AISI Outreach and Communication Programme entails a series of activities aimed at supporting the Africa Information Society Initiative goals, and it involves all societal actors in addressing the continent's quest for an information society.

Under this Outreach Programme, ECA is targeting the main stakeholders in its activities including media, civil society, academia, private sector, gender, youth, and parliamentarians.

Since early 2000, a number of interventions were made to strengthen the AISI's outreach activities through the implementation of the AISI Outreach and Communication Programme focusing on the following areas:

- Policy Briefing Papers that provide insights and useful information to decision-makers and the international community;
- Radio documentaries and programmes on ICTs and its relevance to the development process that would be broadcast by radio stations across the continent in English and French;
- Video documentaries on the policy and NICI processes to encourage other countries to follow suit, as well as serve as a resource for other purposes, such broadcasting by TV stations in Africa;
- The publication of diverse reports on ICT trends and developments as a result of research findings;
- The creation of specific on-line resources to effect interactive communication between various stakeholders on the continent.

6.5.1 AISI e-Discussions

Electronic discussion lists (e-Discussions) offer the potential for increased capacity of dialogue and information sharing by offering a platform that allows for greater participation by all members on the lists. They can allow people with email but limited online access to exchange information and keep up-to-date on recent developments and research. However, participation in electronic debate also re-

quires access to the technologies needed to connect to the Internet, the confidence to use the tools and a willingness to expose ideas to an unknown and unseen audience.

Box 22: Ms. Nnenna Nwakanma, Free and Open Source Foundation for Africa (FOSSFA)

"In this publication, we share the basic knowledge that we have acquired in the WSIS process and present capital issues, fundamental questions in building a people-centere inclusive and development-oriented Information Society. These issues include, among others, management of Internet resources, Free and Open Source Software (FOSS), Multi-stakeholder partnership (MSP), and mainstreaming gender and the differently-abled persons."

"We also share our battles, our stories, and realizations as we prepare for challenges for the future. We share our hopes as we prepare for the post-Tunis phase and reiterate our engagement, as the Africa Civil Society on the Information Society – ACSIS- to build an African Information Society where every African can create, access, utilize and share information and knowledge, enabling him or her, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life."

Source: African CSOs Speak on WSIS, UNECA, 2005

Online discussions can take various forms. Some of them can be moderated whereby there will be a moderator that will facilitate and lead the discussions, while others are un-moderated. In terms of participation, lists can be either closed to selected group of people or open to the public. The public workspaces provide a location to view list archives for the discussion lists, and members of the list, and provide links to related resources. The private (closed) workspaces provide easy access to the archives of the closed group, a document repository accessible to the members of these groups, contact information on the members of each group, and a space to post announcements to the group as a whole.

Box 23: African CSOs Speak on WSIS, UNECA, 2005

".....Structural rather than political constraints are thus the major impediments facing the increased and enhanced use of ICTs in knowledge development and management as a vital component renovating and innovating our economic well-being and quality of life. Resources and services need to be designed to enable ICTs to facilitate knowledge-based solutions that cater effectively to the social, cultural and developmental needs of our citizens at all levels in Africa, for sustainable development."

The creation and facilitation of specific online discussion fora to effect interactive communication between various stakeholders on the continent is one of the major activities of the AISI. Several lists have been established in the past and new ones will be created in the future to facilitate the collaborative work of groups involved in the implementation of AISI.

These discussion lists are providing ECA/AISI with input to its work programme in the sector. Discussions in some of the lists are resulting in concrete projects and activities. One of such examples include the formation of the Free and Open Source Foundation for Africa (FOSFA) during the WSIS Prep-Com2 in Geneva, Switzerland as a result of discussions held before, during and after the civil society meeting that was held in Addis Ababa, Ethiopia in November 2002.

Box 24: What needs to be done in the area of ICT policy?

- Draft a strong Youth paragraph, including Youth causes, in ICT policy and strategies;
- Involve Youth Association in various Information Society committees;
- Create Youth Advisory Council around national and regional information society activities;
- Active consultation - room creation within policy to engage Young people in the formulation of the policy at all levels
- Inclusion: The inclusion of the needs recognised via the active consultation of Youth and Youth experts in the formation of ICT Policy.
- Draft sectoral ICT Youth Policy at regional and national levels.

Source: African Youth Speak on the Information Society, UNECA, 2006

A collection of perspectives on issues related to information society in Africa, expressed by participants of the various AISI online discussion lists, were summarised and published in the “Africa Speaks” AISI Series, including “Africa Speaks on the Information Society”, Africa Speaks on Internet Governance”, African Youth Speak on WSIS”, and “African Civil Society Speaks on WSIS”.

Box 25: Africa Speaks on Internet Governance, UNECA, 2006

“...This publication reflects the various concerns from stakeholders. For a continent known as being a passive listener in international forums, Africa does today speak out loudly and clearly, not just for the sake of saying something, but with the purpose of enriching the global decision making process with sound, in depth and documented proposals. Close to 2000 people have actively engaged in this e-discussion through a process of thorough sharing and testing of arguments around the Internet Governance debate. This production captures selected voices as representatives of the collective effort, and is based on the assumption that, only a sick person knows the hardships of illness, and thus, is in the best position to help identify a cure.

“...Africa Speaks on Internet Governance presents the African perspective on issues related to Internet Governance. All agree on the fact that the contribution of the Internet to development has become an urgent and critical, but contentious issue for the world and especially for Africa. Internet Governance encompasses issues for which mechanisms do not exist in Africa. The various issues under consideration cut across a wide range of topics such as Social dimensions and inclusion; Affordable and universal access; Content accessibility; Cultural and linguistic diversity; Education, human capacity building; Open-source and free software; Internet leased line costs; and National infrastructure development.”

In addition, with preparation for both phases of the World Summit on the Information Society (WSIS), ECA through eDiscussion lists has engaged various stakeholders including civil society, academia, Africans in the Diaspora, the public sector, media and the private sector on their views concerning the Information Society.

6.5.2 AISI information outputs

Under the framework of the AISI Outreach and Communication strategy, a number of information products were produced and new ones will also be produced in the future. Some of the main information products include:

- *Websites and portals* – AISI (<http://www.uneca.org/aisi>), NICI (<http://www.uneca.org/aisi/nici/>), PICTA (<http://www.uneca.org/aisi/picta/>), ITCA (<http://www.uneca.org/aisi/itca/>), etc.

- *PICTA Bulletin* (<http://www.uneca.org/aisi/picta/pictabulletin/>): PICTA Bulletin is a monthly publication that provides information on activities of members in the Partnership for ICTs in Africa (PICTA), as well as news on ICT-related activities in Africa.
- *iConnect Africa* (<http://www.uneca.org/aisi/iconnectafrica/>): It aims to raise awareness in the wider African development community regarding the possibilities offered by ICTs in development. It is produced by the ECA and IICD, and reports on activities of AISI and BDO, funded by DFID, DGIS (Netherlands), and SDC. It is published quarterly both in electronic and print formats. About three issues were produced in 2005 and 2006 in addition to a special publication entitled “iConnect Collected 2005 - Experiences in ICT for education, livelihoods and governance in six African countries”. Most of the materials were translated into French and widely disseminated at various regional and international meetings and conferences both in hard and electronic format on CD-ROMs and websites.
- *AISI Radio Series* (<http://www.uneca.org/aisi/radioseries/>) Resource for media practitioners, especially radio broadcasters to engage citizens on ICTs debates within countries. Funding from the Africa Region of the World Bank; Five programmes: Overview of the information society in Africa (Part 1 & 2), ICTs in Mali, Ghana, and Uganda; “ICTs in Mali”, one of the four programmes in the AISI Radio Series, was broadcast by Radio Netherlands Int. Another batch being produced in French on Senegal and Benin.
- *AISI Video Series* (<http://www.uneca.org/aisi/videoseries/>): ECA has produced two video programmes in December 2004 to showcase successful examples of ICT for development activities in four selected African countries: Uganda, Rwanda, Ethiopia and Ghana. Supported by the German Technical Cooperation (GTZ), video programmes, “Africa Goes Digital” and “The Challenges of ICT for Development” highlight challenges and opportunities of the Information Society in Africa, raise awareness on the importance and implications of ICT for Development issues on economic and social development and demonstrate successful examples and initiatives in the above countries with national ICT policies and plans as a coordinating framework.
- *AISI Briefing Papers Series (Policy Briefs)* (<http://www.uneca.org/aisi/briefingpapers.htm>): The AISI briefing papers focus on issues related to promoting ICTs for development and aim at sensitizing African policy makers about ICT trends and developments in the continent. In addition, in 2005 and 2006, ECA published a series of AISI Briefing Papers to raise awareness among policy and decision-makers and various stakeholders on key issues arising from the development of Africa’s Information Society. The first two in the series were entitled “Towards an Information Society in Africa: The Case for National Policies”, and “Government with an e: The potential of information and communication technologies (ICT) in the African Public Sector”. A series of ICT Policy Briefs were published on geoinformation, building an Information Society – the case of Rwanda, e-commerce, e-government: the case of the Gambia, e-strategies for poverty reduction and MDGs, measuring ICT4D, and access to information.
- *NICI Maps and Graphs* (<http://www.uneca.org/disdl/ict/ictmaps.htm>): ECA developed various ICT maps based on data collected from different sources.

All AISI information products are available at the AISI Knowledge Base (http://www.uneca.org/eca_programmes/it_for_development/kresources_results.asp).

6.5.3 AISI Media Awards

The AISI Media Award programme¹⁸¹⁸ 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 Outreach and Communication Programme. Partners have included the German Development Cooperation (GTZ), the International Development Research Center (IDRC), the International Institute for Communication and Development (IICD), Global Knowledge Partnership (GKP), and the Open Society Initiative for Western Africa (OSIWA). 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”. Although the media in Africa are beginning to report on ICT issues, there is still a wide gap in their knowledge and comprehension of the subject in relation to development trends within their national context. The aims are to:

- Create greater awareness on the role of ICTs in the development process within the framework of the African Information Society Initiative (AISI);
- Support African media to specialize and master ICTs and development issues thereby sharpening their skills and knowledge base;
- Enhance access to information on this subject area by various African stakeholders, thereby raising greater awareness; and
- Stimulate national debates on key issues and emerging trends.

The AISI Media Awards is intended to be an annual event to honour media institutions and professionals. The award ceremony of the 2003 programme was held in Addis Ababa during the third meeting of the Committee on Development Information (CODI III). The award ceremonies of the 2004, 2005, and 2006 Media Awards were broadcast live across Africa via Satellite on South African Broadcasting Corporation (SABC-Africa) during the annual Highway Africa Conferences at Rhodes University in Grahamstown, South Africa.

Fig. 21



In 2003, seven winners from Ethiopia, Benin, Burkina Faso, Tunisia, Zimbabwe, Nigeria, and South Africa received the awards, while in 2004, 16 journalists from Benin, Tanzania, Mali, Togo, Mauritius, Ethiopia, Nigeria, Kenya, Senegal, and Zambia received the awards.

In 2005, 21 journalists from Nigeria, Algeria, Togo, Mali, Rwanda, Ethiopia, Kenya, Cote d'Ivoire, Burkina Faso, and Zambia received the awards, with 18 journalists from Algeria, Benin, Burkina Faso, Cameroon, Ghana, Kenya, Nigeria, Uganda, and Zambia receiving awards in 2006.

The 2006 edition of the awards has demonstrated the growth and maturity of African journalists in informing, sensitising and creating greater awareness of ICT as tool for accelerating the MDGs and stimulating economic growth.

¹⁸ <http://www.uneca.org/aisi/mediaaward.htm>

Box 26: Mr. Mkpe Abang, IT & Telecom Digest, Nigeria and winner of the 2003 AISI/IDRC Media Awards: Reporting on ICT Research and Innovation

"the honour done us with the First Prize Award of IDRC on Reporting on ICT Research and Innovation will definitely inspire us to work harder in order to help bring the knowledge of the benefits of ICTs to the greatest numbers of our peoples, first in Nigeria which is our primary audience, and then to other parts of Africa. The Award will spur us to work in a much more focused direction, realising that ICT holds the key to the development of our continent. And as we have always made it clear to our readers and the public: tomorrow's economy is the knowledge-based economy. And indeed, permit me to add that with this award, our work has only just started, and we shall not relent".

ECA undertook a follow-up survey to assess the impact of the awards on the awardees and their environment. Some of the respondents advised that the events encouraged other journalists to specialize in the ICT for Development reporting.

Box 27: Mr. Aloyce Menda , from Tanzania and winner of the 2004 AISI/GTZ Media Awards: Print Category

"The award has really increased my confidence which has built the work desire as well as morale within myself. The attitudes have built up (in) my professional career an aspect that has pushed me to have a voracious appetite for ICT news. I have also managed to enter into the journalists' network whereby we discuss various problems affecting the ICT sector, like the one currently in a group discussion."

In addition, feedback received from a number of winners indicated that the awards had increased substantive coverage on ICT as a tool for development both at national and regional levels.

Box 28: Mr. George Mwiti Marete, from Rwanda and winner of the 2005 AISI/IDRC Media Awards: Reporting on ICT Research and Innovation

"The Awards have created interest on ICT, making more journalists including editors, give more attention to ICT issues and hence rank them on the same footing with traditional newsroom "darlings" like political stories. My colleagues have now realized that it is possible for one of them to win; they are more focused on ICT reporting and aim to win the award too. I believe my award was a result of conducive ICT climate in Rwanda, spearheaded by President Paul Kagame, himself, the most conspicuous ICT enthusiast among African Presidents and top level decisions makers. Rwanda being the continental flagship in ICT development and adoption; my award should serve to convince African leaders that ICT development is not about funds but progressive political will."

Regarding the impact on decision-makers at national level, he explained that his coverage on telemedicine in rural area has increased interest of using as a tool for development at the level of the officials of the Ministry of Health in Mali.

Box 29: Mr. Salif Sanogo, from Mali and winner of the 2004 and 2006 AISI/GTZ Media Awards: TV Category

Mr. Salif Sanogo, from Mali and winner of the 2004 and 2006 TV Category, commended that the awards have helped him improve his knowledge on ICT and that he now enjoys exchanging information and updating other Awardees on ICT development. Because of the enhanced awareness among the journalists and media institutions in Mali, a regular TV news programme on ICT4D issues has been established, while his AISI Media Award winner TV Programme, CyberNTIC, was selected for the “Images and Science Festival” organized by Centre National pour la Recherche Scientifique et Technique (CNRST),¹⁹ at the Eiffel Tower in Paris. Furthermore, the enhanced visibility through the Awards has been evident in an increased number of invitations extended to him to various events and occasions. CyberNTIC has become a showcase in Mali and invited to all the national ICT events. Mr. Sanogo was also invited by the National Assembly to give his view and comments on Mali’s National Information and Communication Infrastructure (NICI) policy and plan. He has also been sponsored to participate in various WSIS activities to share his experience. The Awards also changed the environment and encouraged new initiatives by promoting the Youth e-Generation movement in Mali and their active engagement in ICT4D issues. Mr. Sanogo has witnessed more software development and debates on ICT4D issues by the youth. Mali also started national ICT Awards with support from various partners.

Box 30: Mr. Adri Gnassegbé, from Togo and winner of the 2004 AISI/GTZ Media Awards: TV Category

Mr. Adri Gnassegbé of Togo commented that he received a number of requests for his programme from a number of African TV stations and PeopleTV. The Award has helped raise awareness on ICT4D issues as evidenced by stimulated debates among journalists and an increased number of interviews and discussions that he has been invited to. The Ministry of Communication also organized an event to recognize his contributions and the Awards. He noted that the Awards created a more enabling environment and his colleagues demonstrated more interest and commitment to ICT for development issues keenly following new developments in the area.

6.6 Stakeholders Implementing AISI

As highlighted by AISI the WSIS outcomes and Information Society forum recommendations on the inclusive Information Society should be viewed as shared goals. Each stakeholder group therefore has a particular role to play, according to its aptitude, capability and comparative advantages. These diverse roles are highlighted below.

6.6.1 The role of governments

As the value of information increases, the need to clearly define the government’s role becomes more urgent to ensure fairness and transparency. Governments have a key role to play on the aspects of the Information Society. Governments’ must promote policies, standards and guidelines impacting the regulatory and legislative environment under which the Information Society should operate.

Governments must also encourage and promote a favorable environment for national and foreign direct investment and for the creation of more and better jobs to boost productivity, modernize public services and provide citizens’ the opportunity to participate in the knowledge economy. Barriers to market entry or growth can be reduced, particularly for small firms through the provision of information, advice and improved access to venture capital.

In the area of education, government at all levels should unquestionably take a strong leadership role — implementing policies that increase broad-based educational achievement and prepare society for lifelong learning.

6.6.2 Parliaments in the Information Society

Parliaments represent the best opportunity for all societal actors to be represented during national level policy formulation processes. Parliamentarians, through the enactment of national legislation and with an effective role are expected to establish the fundamentals for an inclusive African Information Society. However, few parliamentarians are fully aware of the issues and implications of the Information Society and hence are unable to actively participate in national debates on e-strategies and in the translation of citizens' needs into policies.

The African Parliament

Support to parliamentarians was one of the recommendations endorsed at the third meeting of the Committee on Development Information (CODI III)¹⁹²⁰ organized in May 2003.

ECA support for Parliaments' in ICT for Development includes:

- The training of more than 100 Ethiopian MPs at the ECA-ITCA. The success of the workshop led to additional requests for the training of more parliamentarians from other countries. Responding to the governments' requests, ECA organized workshop on "e-Strategies as a Tool for Accelerating MDGs and Poverty Reduction Strategy Objectives and the Role of the African Parliament" for MPs, and Parliament staff in the Gambia, Niger, Swaziland and Tanzania. ICT Committees were established in each of these countries including comprehensible action plans.

The collective use of ICTs by MPs within Parliaments to improve their internal activities, interact with their constituents and the public in general and contribute at regional and global levels to the Information Society debate will remain a challenge for which effective strategies need to be devised and constantly reviewed.

6.6.3 Media in the Information Society

As enshrined in the AISI,

"In addition to being an essential means for information dissemination, the mass media plays a critical role in spreading awareness in Africa of the importance and benefits of the information revolution. Newspapers, radio and television provide an easy, accessible and cheap means of carrying information to end-users. African communities no longer need access to the Internet to receive most of the information it carries. The mass media accesses many of these existing sources of information and provides broad channels of communications to the poor and to remote areas."

¹⁹ <http://www.uneca.org/codi/>

Trained journalists, through effective coverage of ICTs issues, are well positioned to continuously raise public awareness of ICT as a tool for accelerating MDGs, poverty reduction policy objectives and socio-economic development.

As described in section 6.5.3, the AISI Media Award programme was introduced by ECA and its partners 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.

6.6.3.1 AISI Media Training Modules

For ECA, the media represents a value-added constituency for providing awareness on the role of ICTs in Africa's socio-economic development. The media has a clear role to play by reporting on issues which makes a difference in the lives of ordinary citizens who need ICT access to enhance food security, access markets and improve livelihoods.

ECA has continued to support a series of activities, including continuous on-line discussion, awards, sponsorship to Information society events and the development of AISI Media training module for media institutions.

The module developed with the financial support from the Communication Assistance Foundation (CAF/SCO), aims at supporting African media to specialize and master ICT4D issues. It offers a perspective for capacity building on ICT policies, infrastructure development and access to information, local content development and networking. Knowledge and skills will equip journalists and enhance the quality of their reporting on ICT issues.

Twenty-five (25) trainers of sixteen schools of journalists in Africa were trained on the module. Many journalism colleges have commenced integrating the module contents in their curriculum and an on-line module is yet to be finalized by the ECA's ITCA.

6.6.3.2 Media networks

The creation of media networks at national, sub-regional and regional levels emanated from the on-line media discussion platforms and during various forums as a way of sustaining the involvement of media groups in building the African Information Society. National, sub-regional and international networks provide a mechanism for broadening and participation and enabling participation in the decision-making process on issues related to the Information Society. The networks also serve as vehicles for peer reviewing, sharing of ideas, communication and as opportunities for continuous personal and professional development.

Global ICT4D media network steering committee of media professionals were appointed to lead the process of establishing an African Media ICT4D Network during Media Forum held during the WSIS Africa Regional Preparatory Conference held in Accra, Ghana in 2004. This structure includes a Regional co-ordinator, five sub-regional representatives and a member of the Diaspora. Focal points have been identified in Rwanda, Mozambique, Zimbabwe, Zambia, Uganda, Congo, Mali, Cameroon, Ethiopia, Burkina Faso, The Gambia, Namibia, Nigeria, Lesotho, Mozambique, Malawi, Seychelles,

Burundi, Kenya, Benin, Tanzania, Togo, Ghana, Senegal, Tunisia, Sierra Leone, Swaziland, Niger and Botswana. In most of these countries there are online discussions at national level.

Media Networks have played a role in creating awareness through media campaigns as exemplified by campaigns on ICT4D in Rwanda, Gambia and Niger. The campaign consisted of informative print and electronic media coverage of ICT4D policy pillars and implementation status and related issues.

Box 31: The Role of ICT Media Networks/Campaigns in Information Society Development in Africa

Participants acknowledged this during regional training of trainers workshop organized by ECA with the support of GTZ:

Mr. David Makali, Director Media Institute (MI), Nairobi, Kenya said after the training of trainers: The module is a bridge between the past and the future as a road map to where Africa needs to go to function in the information age. Quote:

"The module provides a useful link to understanding the vision of improving access to, and use of, ICTs in Africa. The module is a bridge between the past (in terms of the process and ideological motivation behind the AISI initiative) and the future (as a road map to where Africa needs to go to function in the information age). Journalists need that bridge to empower them in their day-to-day coverage of ICT4D and help them critically evaluate and spread the gospel.

The mass media stand at the crucial junction between the masses and the agents of development such as government and NGOs and the creators of technology. If they can help in publicizing new inventions and how their use can improve the gross happiness of the people by making services more efficient and production more economical, then they will have played their part as harbingers of change and development."

It was also seconded by Mr. John Akakulubelwa Mukela, CEO, NSJ Southern Africa Media Training Trust, Maputo, Mozambique:

"The training will help a great deal because currently, there are not enough intellectual and practical tools aimed at imparting trainers with the necessary capacity and know-how to carry out training initiatives and courses aimed at strengthening the role of journalists in the Information Society. There is need for more training tools in this area of training. The AISI media module should therefore be developed as a "living tool" which can be constantly be updated and tailored to the individual needs of trainers and journalists, as well as media training institutions in Africa... This was an extremely useful intervention on the part of the ECA, and I will be looking forward to the follow-up activity. I shall also ensure that I take the process further in my own work at the NSJ and also at the Southern African Media Trainers Network (SAMTRAN)."

AISI Module used in Swaziland, by Michael Motsa, MISA, Swaziland:

"I just thought I should let you know what is happening in Swaziland regarding the ICT4D. We are currently running a weeklong workshop for journalists (using the ECA module). With a field of 20 journalists attending, the workshop began on Monday 17 April and ends on Friday 21 April. We were able to secure funding for the workshop. Since we have already integrated ICT in our MISA programmes, we anticipate further workshops on this. (AMINET_uneca@googlegroups.com)"

6.6.4 Academia in the Information Society

A nation's ability to fully develop an Information Society depends on the capacity of its people to be educated, assimilate and process complex information. In this context, higher education institutions play a critical role, whilst repositioning themselves for the challenges of globalization and the information age.

Worldwide, academic communities have been a driving force in creating the Information Society, including spearheading intellectual leadership through a series of knowledge-building, research and

development activities. They constitute reservoir of expertise that could provide vital assistance in partnership with government, private sector and civil society in an increasingly globalized and complex world. The academic sector is primarily responsible for training the workforce needed by other sectors to undertake various roles in the development of the information society. They also conduct research to advance technology and develop new tools, techniques and solutions.

The African Information Society Initiative (AISI) framework document states that the AISI higher education and research objective is “*to act as a vehicle for pooling national and regional intellectual and human resources to help contribute to research and development efforts in the continent.*”

In re-affirming the role of academia, universities and research institutions in the Information Society, ECA established the Africa Learning Network (ALN) to facilitate the effective use of ICTs in the learning and teaching process.

More detailed information on the ALN as well as the role of the academia in Information Society development is presented in Chapter 7.

6.6.5 The Role of civil society

It is now generally recognized that the collaboration and participation of civil society is a crucial factor in the success of development initiatives. Civil society is typically closer than most government actors are to the grassroots community, with consequent advantages both in the ability to mobilize at levels government may find difficult to reach, and in the sensitivity to grassroots needs that may be vital to the achievement of development objectives.²⁰²¹

African civil society participation in the Information Society is therefore crucial for promotion of sustainable and balanced development, human development that is equitable, holistic, inclusive of all sectors of society, gender responsive, participatory and people-centered and Afro-centric. It can provide leverage to influence policy and ensure that strategies and plans enable the development and the formation of an Information Society based on social justice and human development. Recognizing the critical role African civil society should play, the ECA has assisted in raising awareness and building capacity of civil society organizations within the framework of AISI.

The Consensus Statement of ADF III stressed explicitly the need to engage civil society ever more thoroughly in the pursuit of Africa’s key development and governance agenda. It stressed the value of civil society participation both on the input side of large-scale initiatives, in consultations and forums at all levels, and also in the effective pursuit of goals such as achieving targets for representation, promoting regional integration and international cooperation.²¹²²

To raise awareness on the importance of ICT policies, strategies and plans, as well as the Information Society and the role of each stakeholder, two forums were organized:

20 <http://www.uneca.org/adf/>

21 <http://www.uneca.org/adf/>

- Bamako 2002: African Civil Society Representatives and non-governmental organizations gathered for a consultative meeting on the Role of Civil Society in the Preparation of and Participation in the World Summit on the Information Society (May 2002).
- The Association for Progressive Communications (APC) and ECA held a five-day Information and Communications Technology Policy and Civil Society workshop November in Addis Ababa November 2002.

The Representatives and Delegates of African civil society organizations participating in the WSIS process its onset wished to better organize themselves in an efficient coordinating mechanism. This became a prerequisite a critical phase of the process. After months of online discussion, the African civil society entities engaged actively during the Phase I of the World Summit on the Information Society in Geneva (December 2003). The Africa Civil Society for the Information Society (ACSIS) a non-governmental organization with a non-profit aim was constituted to ensure the use of ICT for African development.

With support from the ECA, and the government of Tunisia, the ACSIS was launched in Tunis in April 2004. This launch was the realization of a long-term aspiration of African civil society as shared in the civil society online forum of the African Information Society Initiative.

To better pursue its development goal, and in accordance with the objectives of the Declaration of Principles and Plan of Action, the ACSIS, based on discussions carried on during its virtual plenary hosted by ECA before, during and after Phase I of the WSIS, progressed to an enabling phase in the AISI.

ACSIS acts as an umbrella structure through which African civil society may influence policy and ensure that strategies and programmes enable the promotion of development: poverty alleviation, use of appropriate ICT for balanced development, participation of communities/civil society in policy and strategy development and the implementation of development initiatives through the following approaches it:

- *Promotes* the views and interests of African Civil Society to ensure that new and traditional ICT may be utilized for the promotion of sustainable development and the formation of an Information Society based on social justice and human development.
- *Advocates & Lobbies* for the development of comprehensive and inclusive ICT strategies to address the digital divide.
- *Informs* Civil Society on national, regional and international discourse regarding ICT for development.
- *Advises* national, regional, continental and international institutions on the needs and interests of African Civil Society.
- *Builds capacity*: by developing capacity and promoting an action-oriented dialogue on our key aims.
- *Networks and Partners* with grassroots organizations, national, regional and international institutions to develop and add value to existing policies and initiatives aimed at promoting ICT.

ACSIS relies heavily on discussions, ideas and exchanges of all members on its virtual plenary. Members are constantly in contact through the virtual forum. The Membership options to the list and message

archives are open and transparent. Currently, approximately five hundred (500) persons and organizations are using the list for active exchange, announcements, networking and learning.

ACSYS has, beyond a reasonable doubt, demonstrated the strength of a network. In keeping with its mandate of civil society promotion, advocacy, lobbying, information, training, advising, partnership, networking and capacity building, it has:

- Contributed largely to the official documents of the WSIS as well as the Civil Society Declaration
- Contributed to a better functioning of the international Civil Society Bureau in the WSIS process by heading the Youth, Science and Technology, and Media caucuses.
- Hosted the International WSIS Civil Society Bureau in Africa being the very first international bureau to meet outside its traditional base of Geneva.
- Hosted the Louder Voices Symposium on Internet Governance (IG) in Africa giving a majority of African Civil Society entities the voice in the IG debate.
- Held bilingual (English and French) online consultations on the capital issues of ICT4D: Priorities, Internet Governance and Finance.
- Conducted a training forum parallel to the Second Africa Regional Preparatory Conference for Phase II of the WSIS.
- Co-organized a Multi-Stakeholder Partnership (MSP) Forum in the WSIS process.
- Organized a regional preparatory forum dedicated to ICT for African development to launch the Ministerial Committee and the Africa Regional Preparatory Meeting for the World Telecommunications Development Conference (Qatar 2006) and the World Summit on the Information Society (Tunis 2005).
- Members of the ACSYS bureau have been appointed to the Internet Governance Working Group and the Global Coordination Body of the World Summit on the Information Society.
- ACSYS coordinated African CS and Information Society publications supported by ECA.

6.6.6 Private Sector in the Information Society

To reach the Millennium Development Goals, Africa must attain economic growth of seven percent (7%) or more for the next nine years. A successful and thriving private sector is key to achieving these growth targets elaborated upon by the WSIS Plan of Action:

“The commitment of the private sector is important in developing and diffusing information and communication technologies (ICT), for infrastructure, content and applications. The private sector is not only a market player but also plays a role in a wider sustainable development context. An approach for developing closer partnerships between the public and private sectors should be considered.”

The AISI urged the strengthening of partnership with the private sector as a mechanism for expediting the implementation of national ICT strategies and policies. Areas of focus for this partnership may include: innovative financing mechanism establishment, basic and adequate infrastructure, human capacity, content development and research/innovation promotion in the Information Society.

Member States are increasingly turning to partnership with the private sector for the purpose of delivering a project or service traditionally provided by the public sector. Structured partnership with the

appropriate right risk balance and performance incentives can deliver true benefits for government and users, and therefore foster the implementation of an inclusive Information Society.

The ECA undertook a number of initiatives with African private sector since the adoption of the AISI with the aim of developing strategies to facilitate stronger involvement of the private sector in the building of the African Information Society. These activities are geared towards exchanging ideas and promotion of the enabling environment for channeling local and external investment in ICT to promote effective public private partnership and a vibrant African private sector. These activities include: best practices in centers of innovation and tri-partite partnership (Academia, Public, Private), visits to Elgazala Technopark, sponsorship to attend workshops and forums on Information Society issues, including the African Development Forum, the World Summit on the Information Society and other workshop related to ICT investments over a hundred African private sector actors were involved in these activities. On-line discussions were also organized to exchange views on strategy to improve private sector participation in the African Information Society. Recommendations include promoting private sector networking at national, sub-regional and global levels and assisting governments to establish the legal and regulatory environment for their development. Other recommendations from African Private sector actors include:

- The private sector role in the development of ICT infrastructure, particularly the development of the telecommunications sector.
- Adequate legislative and regulatory environments are indispensable for the efficient participation of the private sector in the information society.
- Capacity building of SMEs in e-Commerce and providing access to innovative sources of funding.
- Restructuring the banking and financial sectors for the creation of an environment conducive to the funding of ICT and the promotion of electronic transactions.
- Creation and sustaining of permanent dialogue frameworks to facilitate favourable policies and integration in the process of building the African Information Society.
- Private sector involvement in the use of ICT in education, content development, NICI plan formulation and the promotion of African nations to the international private sector.

6.6.7 African Women in the Information Society

Africa's information economy can be strengthened if women are given the opportunity to become active participants in the creation, ownership, control, and consumption of information industries. Gender balance and the equal participation of men and women should be factored into all stages of strengthening Africa's Information Society including: human resource capacity building, investment, content development, policy development, ownership and control. Information and Communication Technology offers potent tools to overcome the obstacles women and girls typically face and opens new opportunities in education, political participation, healthcare and income generation. For example, ICT bridges communication barriers by allowing women to access many of these opportunities without having to leave their homes, villages or communities.

To realize this potential, ICT activities must recognize and address gender differences that affect ICT access, usage and benefits. Recognition of these barriers starts at the policy level and continues through

implementation, monitoring and review. Without such explicit consideration of gender equity, ICT activities may inadvertently exacerbate rather than bridge the gender digital divide.

6.6.8 African youth in the Information Society

*“The median age of the African population is less than 20, yet many young people are disillusioned by the protracted political and economic crises afflicting the continent. Today’s youth will one day be leaders in society making decisions that will have enormous impact. They have many assets, talents, and resources to offer. The challenge is to mobilize their energies and to transform the Information Society so that they feel included and represented.”*²²²³

The challenge is now how to scale up programs that actively build the capacity of today’s youth, the young people of today, and that encourages them to become responsible future stakeholders and accelerate their participation in the global economy. Youth’s importance and role in society has been addressed by the AISI and internationally by the World Summit on the Information Society. The support to youth was also articulated as one of the recommendations endorsed at the third meeting of the Committee on Development Information²³²⁴, organized in May 2003 in Addis Ababa.

The mobilization of youth passion, creativity and unique perspectives of their current and future needs in the Information Society is now increasingly seen as both an international and national priority:

“The capacity for progress of our societies is based, among other elements, on their capacity to incorporate the contribution and responsibility of youth in the building and designing of the future. In addition to their intellectual contribution and their ability to mobilise support, they bring unique perspectives that need to be taken into account.” (United Nations World Programme of Action for Youth to the Year 2000)

“For your country, If you plan for a future – nurture youth” (Proverb quoted in *National Youth Policy of India, 1992*)

6.6.8.1 The African AISI Youth ICT4D Network (www.ayinetwork.org)

The African Youth and Communication Technologies for Development (ICT4D) Network (AYIN) is a pan-African and all-inclusive platform for African youth input into the African Information Society agenda. With a vision of “a networked generation of young Africans empowering themselves and contributing to the continent’s active participation in the Information Society,” the network is set to move youth inclusion to the next level.

Beginning with a fortunate crystallization of youth advocacy efforts, which were later supported by the Economic Commission for Africa through a mailing list, young Africans discussed their role and expectations around the Information Society. These discussions led to the emergence of concrete proposals for future action. With the support of numerous organizations, youth gathered at Accra 2005 and

²² ADF IV excerpts

²³ <http://www.uneca.org/codi/>

proposed action-laden recommendations, including the creation of the African Youth ICT4D Network through which they promised to lead action within the Information Society.

AYIN was launched on the 4th of February 2005 at the second African Regional Meeting for the World Summit on the Information Society (Accra 2005). The Network objectives include:

- To ensure youth input into Africa's Information Society interventions.
- To maximize youth potential/energy in the achievement of the Millennium Development Goals, within the context of regional initiatives such as NEPAD and National strategies.
- To engage relevant stakeholders in the implementation of all aspects of the AISI & WSIS Plan of Action.

Box 32: Model of Stakeholder Network Action Plan

Objective 1: To consolidate the institutional framework

- Create legally recognized structures, according to the country's laws & regulations.
- Undertake membership drives.
- Endow the Committee with an office, budget and realistic plan of action.
- Establish strong public relation through information dissemination, lobbying and advocacy.
- Create monthly publications and newsletters.
- Develop an advertising plan for the network.
- Create a website.

Objective 2: To build Network members capacity

- Establish on-line discussion and information exchange platform between members.
- Initiate debates (on-line or face-to-face) on issues related to e-Strategies, the Information Society and the role of the Network.
- Organizing internal meeting to master e-Strategies and other policies objectives.
- Develop/acquire lobbying techniques and public relations methods.
- Participate in conferences, seminars and other activities ICT related activities to advocate on behalf of and inform Network members and other partners.
- Develop membership capacities and promote action-oriented dialogue in partnership.
- Develop partnership for member support to various ICT related forums, meetings, workshops, and the role of the Network.
- Develop partnership for internal workshop on issues related to the Information Society and the Network.

Objective 3: To involve the Network in building the Information Society at the national, sub-regional and global levels

- Draft text, conduct research and collate information, including drafting a Network position document.
- Provide information in an accessible format (including research/analyst) on ICT policies, strategies, initiatives and best practices.
- Advise on ICT policy and strategy formulation, implementation, monitoring and review.
- Ensure Network representation, on a range of ICT-related commissions or bodies.
- Advocacy and lobbying for e-strategies implementation and its impact on the community wealth.
- Engage in concrete projects/programmes to develop the Information Society at national, sub-regional and global levels.
- Establish contact and partnerships with a range of stakeholders to enable the implementation of the Plan of Actions.
- Promote sub-regional cooperation in the field of the Information Society.

The network established a coordinating team (the AYIN Bureau) to lead organizational strategies. The Bureau acts in line with the constitution and contributes to the implementation of the Plan of Action. The network has also nominated an 11-person bureau, representing all five African sub-regions and

the Diaspora. National Coordinators are also elected in all countries to foster Youth involvement in e-Strategies.

The network has started implementing its Plan of Action with a study on Harnessing ICT for Youth Development. This study would contribute to assessing the involvement of youth associations and individuals in ICT4D activities at national and sub-regional levels, and provide a useful reference point for countries on strengthening youth contributions in the formulation, implementation and monitoring of e-Strategies and in the process of harnessing ICT for development. Five country cases studies have been launched.

6.6.9 Other groups in the Information Society

Other groups include, users associations, ICT professionals associations or interest groups (health, education, or local administration) that are dedicated to harnessing the potential of ICT for their members to bridge the digital divide.

Through email newsletters, briefing papers, reports, conferences, meetings and seminars, they provide a forum for members to debate strategic ICT-related issues and inform them of major new developments. The association also acts as a nexus for advice and commentary from its constituency to government on IT-related policies.

6.7 Challenges to effective stakeholder network participation and consolidation

Stakeholder network contribution could be enhanced by a more facilitative role of the government, stimulating, supporting or even creating platforms, including official recognition/legitimacy of the Networks and the provision or facilitation of a secretariat office. The challenges are outlined below.

6.7.1 Capacity, and Time Requirement for Consolidation

From inception to consolidation, the participatory process requires a long time frame for building member capacity, internal trust and confidence. Stakeholder participation can only be meaningful if members are well informed, trained on various skills, including advocacy, partnership concept, lobbying, ICT4D and their role, multi-stakeholder partnership development and maintenance. Therefore in many cases the inability of stakeholders to advocate for stronger Information for Development policies and limited awareness prevents engagement in the NICI process at the national level. There is also a need to prove that there are clear benefits to be gained from such collaboration.

6.7.2 Lack of resources

There is no adequate mechanism for securing sustained funding for Network activities, either from donor or local sources. For example, most of the local Networks have attempted to establish their own

websites but they have been unable to update them regularly. These insufficient resources are often limiting factors to enhancing stakeholders' continuous participation.

6.7.3 The lack of an enabling environment: inadequate legal and regulatory frameworks

Creating enabling environments refers to activities that aim to create an institutional, administrative, legislative and policy environment conducive to stakeholders' contribution. Thematic networks are not recognised as a public utility mechanism to support development. They are either considered NGOs and must be registered in accordance with the law, or they are considered illegal structures. Legislation to support the development of stakeholder networks as policy dialogue and implementation framework must be promoted at national and subregional levels.

Box 33: Remmy Nweke: AISI Media Award winner from Nigeria, discussing AISI Media Network in Nigeria

The current status is that the Network is up and running but the fact remains that membership cuts across electronic, print and magazines, but the due recognition by media is still distanced. The outcomes that could be viewed as success stories is that over time, many Nigerian journalists and ICT-inclined ones for that matter have come to realise that all of us need to share information and above all, benefit from various training and empowering programmes out there.

One of the suggestions that could lead to outcomes should be either country-by-country launch of the network to inspire many journalists involvement or continental launch to further boost the initiative. I think sensitization is very relevant and more so, giving the country focal points some role to play such as in organising specific meetings and workshop to further boost whatever knowledge they have as well as information and they share ideas. As matter of fact, the AfricanMediaICT4Dnig has been up and running since the Prepcom in Ghana and interests have grown as well, nowadays, it is easier for some journalists to develop interest on their own having heard the benefits such as attending trainings abroad, exposure to conferences etc.

Individual implementation strategy could be rated as 10 per cent while community is still at zero if you ask me, because officially, we have not partnered any group, especially in the media on any major project while the apathy in the media in socialisation is another obstacle. Regarding the level of the network: Definitely we are at learning stage encouraging membership and then looking forward to community developmental involvement.

For me, ECA activities in promoting the media and Information Society is a clarion call to all men of goodwill using the media to reinvigorate our society, especially developing countries of which most are in Africa. As matter of fact, in African one could hardly count up to five advancing countries, may be South Africa, Nigeria and Ghana. Yet when many of us are poor in knowledge or information, there is no gain saying that we have arrived in contemporary media and evolution surrounding IS.

Therefore, ECA involvement has been one big hope of encouragement for me and many others who eventually understand the import and cherish what efforts are being put in place to change our society.

Do you know it took years for some of us to understand that ECA was a propelling force in getting IT/ICT policy on ground in many African nations, but these politicians take most of the glory.

Keep it up anyway although more jobs have to be done to get media structurally into the main frame of deployment ICT to engender Information Society.

Box 34: Farouk Kamoun (Tunisia), Coordinator of Academia Research Network (ARN)

1. Current situation of the Network, overall

The Network was formed in 2004. At the on-set, the Network focused on research work with a view to aligning the activities with the profile of the information society and fostering a climate of exchange on comparison and integration possibilities; the exchanges culminated in a holistic and adaptable conceptual model.

In the second phase and with a view to a pragmatic orientation of the activities of the Network, new linkages were formed with both academia and with practitioners, in line with an engineering-research perception: with the aim of complementing the research work on impact indicators and coming up with a set of usage, penetration and impact indicators, the Network – in the specific case of Tunisia – embarked on two stages:

- Mobilizing academics and research students in the area of statistics to propose to practitioners the indicators that can be applied on the ground, thus vetting the indicators with them before the actual testing
- Building partnerships with institutions responsible for statistics.

2. Perceived successes, and weaknesses

- involving academia, in a real way, in research work that can contribute to the development of the African Information Society
- obtaining tangible analytical results on the basis of which a conceptual reference point can be constructed for the purpose of developing information-society benchmarks
- building partnerships with policy-making, implementation with statistical institutions on ITCs
- raising awareness through a drive for participation of stakeholders in presenting findings on issues relating to benchmarks
- difficulties in arriving at effective synergies with researchers from other countries dealing with the same discipline

3. Concrete suggestions and proposals towards achieving the expected results

- strengthen research capacities in information-society benchmarks
- provide research grants to research students (at master's, doctorate levels, etc.) in pertinent disciplines
- create a dedicated ARN website with the following key content areas: members of the Network, Network publications, ongoing projects and activities, shared bibliography and related links, news, selected specialized forums, and so on
- organize an annual workshop bringing together researchers and practitioners on issues concerning the information society; these can be for a for presenting not only the work of Network members but also those of others who are able to make relevant contributions
- organize training and awareness-raising sessions across the continent, conducted by ARN members and fostering training support mechanisms

4. Our overall perception on the principle of involving formal networks in the process of developing an inclusive information society in Africa

- a “win-win” involvement for members of ARN to deepen the climate of exchange and vetting of the results by participants who are members of formal networks, and for the latter to be able to rationalize their perceptions and actions on ICTs

5. The formal networks go through the following three growth stages, from inception to consolidation:

- Level 1: institutional consolidation (3-6 months)
- Level 2: implementation stage (effective implementation of action plans, individual development and development of the membership generally (1-2 years)
- Level 3: Sustainability of the network (credibility of the network, buttressed by its results on the ground in accordance with its mandate, and the network being involved in a sustainable process) (2 years and beyond)
- A network in the process of consolidation draws on the three levels: our network, which was formed in 2004, is currently operational, and continues to consolidate by involving others. It plans and programmes its activities; it has initiated actions with practitioners. If it were to be graded, it should be placed at the transitional levels 2-to-3.

6.7.4 Reluctance of Governments to Involve Stakeholders in the NICI Process

Stakeholders' group activities in relation to the implementation of the NICI have not been prioritised by partners and governments of the member States. It is difficult for the Network to receive direct support from ICT4D partners and therefore; there is a need to consider this mechanism as a relevant component for the process of building multi-stakeholder partnership for development. Networks can only be sustainable where there is enough support from decision-makers. As a prerequisite, governments must display the political will ensure the process is as inclusive and participatory by not only formally inviting all stakeholders, but also creating an enabling environment for such participation.

Box 35: ARN on African Language and Content Development in the Cyberspace, Cameroon, by Blasius Chatiah, University of Yaounde II, Cameroon

1. The current status of the network

The network work plan has been produced and network members invited to contribute to the key actions (the publication on-line and hard copy versions of the newsletter and specialised journal).

2. Outcomes that can be viewed as success stories and the weakness

a) Strengths

The network is already established.

Network members are engaged in ICT research and related activities.

Animation of the network is gradually being established through the Harambee project within which a bi-annual newsletter and an annual specialised journal will be published both on-line and in hard copy versions. These will certainly boost the image of the network and consolidate knowledge and information sharing among its members.

b) Weakness

Communication between the network members is not very smooth. There is yet no clear idea as to why this situation is the way it is. Many members do not respond (promptly) to our requests. ICT infrastructures and personnel within the network are not well developed.

3. Suggestions expected to lead to the outcomes, kindly include some concrete actions to be undertaken

Effective communication between members of the network: Permanent e-mail communication will enable them to easily share their views and opinions on their research activities and to mutually encourage one another. Some kind of incentive to member may be called for.

Contribution to the action plan adopted for the network: The main activities of the action plan adopted within the framework of the Harambee project constitute the primary platform for information sharing and research animation. The contribution of members to the newsletter and specialised journal will provide an impetus for greater involvement. This contribution needs to be stimulated.

Network presence in ICT development conferences and workshops: This will provide an opportunity for the network to be abreast with the most up-to-date concerns in the development of ICT in general and particularly in the African languages and Content Development in Cyberspace.

4. General view of involving structured groups in the process of building African Information Society

It would be desirable that structured groups be integrated into the African Information Society as this will broaden the scope of ICT development and render the responsibility of its promotion a matter of collective ownership. However, proper ways of involving them remain to be fully developed.

5. From inception to consolidation, networks usually pass through three levels:

Level 1: Institutional consolidation framework (3-6 months)

Level 2: Implementation framework (individual and community development and effectiveness) (1-2 years)

Level 3: Sustainability (network well recognized through the effectiveness of its mandate and embark sustainability process of the whole) (2 years and above)

Can you indicate at which level is your network and why?

In effect, we are in Level 2. Our network has already been established and should become fully functional with the implementation of its action plan. The Harambee project now provides the framework for starting off in Level 2. But this is proving to be rather more complicated than previewed. Network members do not respond to the different calls made by the focus network coordination. We are still looking for appropriate ways of waking them up.

The Role of Academia in Information Society Development in Africa

7.1 Introduction

A nation's ability to fully develop an Information Society depends on the capacity of its people to be educated and be able to assimilate and process complex information. Worldwide academic communities have been part of the driving force in the Information Society, including spearheading intellectual leadership in this area through a series of knowledge-building activities on the information age. To be competitive, an education system must be part of a human resource strategy as a poor education system amplifies underdevelopment and its effects, such as the rise in poverty, inequality, the environmental crisis and discrimination across gender lines.

The new economy offers unprecedented opportunities which will only benefit countries which take significant strides in building human capacity. Of the four pillars cited as being critical requisites for full participation in the knowledge economy, education, training and innovation systems²⁴²⁵ have been acknowledged as being crucial for the creation, sharing and use of knowledge and for taping into the growing stock of global knowledge, assimilating and adapting it to local needs.

The academic communities in Africa represent the last untapped reservoir of expertise that

could provide vital assistance in an increasingly globalised and complex world, working with governments, private sector and civil society in sustaining the Information Society. The academic sector is primarily responsible for training the workforce needed by other sectors to undertake various roles in the development of the Information Society. It is therefore necessary that objectives be redefined in order to achieve professional training for increased social production and a better quality of life.

7.2 The Africa Learning Network (ALN) and AISI

The AISI framework acknowledges that,

“Africa’s social and economic development is to a large extent determined by the size and quality of its work force — its human and intellectual capital. The success of economies of the future will more than ever be determined by the quality of their human resources as the importance of natural resources steadily diminishes. Preparing Africa for the information age primarily necessitates appropriate investment in its human resources — training, education and promotion will be the cornerstones of Africa’s new society.”

To meet this challenge, the AISI proposes “Components of an African Information Soci-

24 <http://go.worldbank.org/5WOSIRFA70>

ety Framework” which define beneficiaries and goals/actions from which different programmes will achieve specific objectives. The education and training the objective is *“to improve basic education and work force skills”* and the higher education and research objective is *“to act as a vehicle for pooling national and regional intellectual and human resources to help contribute to research and development efforts in the continent.”*

In re-affirming the role of universities and research institutions in the Information Society, ECA established the Africa Learning Network (ALN) to facilitate the effective use of ICTs in the learning and teaching process. The ALN was launched during the ADF’99²⁵²⁶, based on the theme: “The Challenge to Africa of Globalization and the Information Age.” ALN’s activities are based on the premise that transformation in education and learning requires a shift from traditional methods where new technologies can create the opportunity for the best minds to exchange information across vast distances both at the national level and throughout the Diaspora.

ALN has three pillars namely:

- (i) SchoolNet Africa - a regional structure that supports national and regional school networking activities;
- (ii) VarsityNet - aims at establishing connectivity at universities and related institutions of higher learning and research, and stimulates the development of content production and information sharing within this environment; and
- (iii) OOSYNET-a youth networking initiative that addresses the needs of Out-of-School Youth (OOSY) at the national and regional levels.

7.3 AISI and VarsityNet Research Network

Africa currently faces many challenges, and R&D has been identified as an approach through which these challenges could be addressed. It is important that Africans undertake this research, as they are best suited to develop relevant customized solutions. Universities, as the centers of intellectual leadership, research and innovation, can contribute significantly to addressing these challenges. R&D activities often demand exorbitant financial resources and working in isolation, individual universities may not adequately fund these activities. Collaboration amongst universities is therefore a means of pooling financial and intellectual resources for success.

Within the framework of the ALN to facilitate the improvement of ICTs in the learning and teaching process, ECA has been collaborating with the Ford Foundation to provide a platform and space for leading African academics to reflect on issues for enhancing the role of academia (academics and institutions) in the Information Society. An Academia Research Network (ARN) was created as a WSIS activity to engage African researchers and academics on key issues emanating from the Geneva Summit in 2003.

Under the VarsityNet programme, two research networks were launched, the Addis Ababa University (AAU) and the Inter-University Council of East Africa (IUCEA - Universities of Nairobi (Kenya), Makerere (Uganda), Dar-es-Salaam (Tanzania) and the Jomo Kenyatta University of Science and Tech-

²⁵ <http://www.uneca.org/adf99/adf99m.htm>

nology (Kenya)) Networks. These Networks have undertaken specific activities aimed at harnessing the potential of Open Source Software (OSS) to provide cost-effective ICT applications and promote local content as described in the following sections.

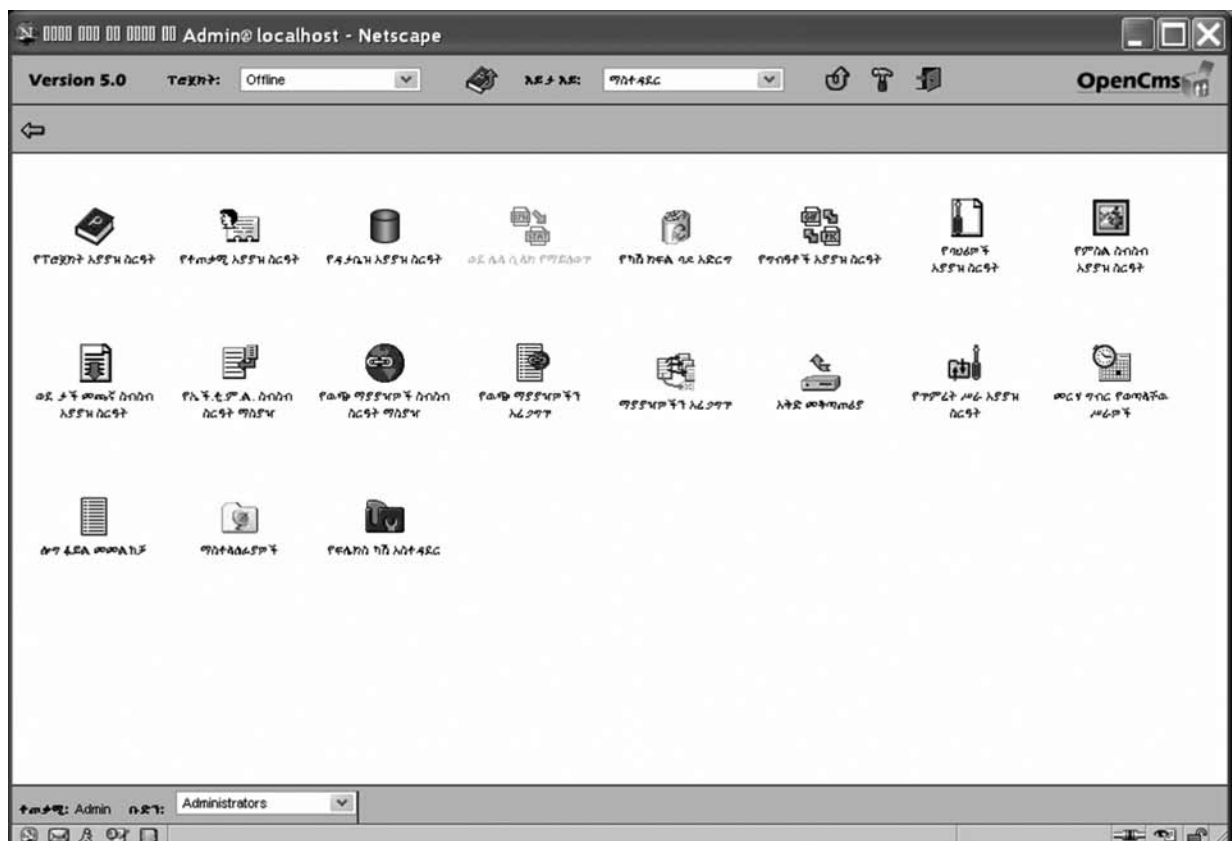
7.3.1 The Addis Ababa University (AAU) Network activities

The Free and Open Source Software Localization Research and Development Project is a component of the AAU VarsityNet project supported by the ARN. It was launched in 2003 by the faculty of the Department of Computer Science at Addis Ababa University.

Research development activities undertaken include:

- Development of an e-government platform based in the Amharic local language for a web-based, multilingual and multi-alphabet, customizable document exchange platform to be used by local and central governments in the country. The platform is configurable by non-IT personnel and was developed using Open Source Software in order to benefit from the wealth of intellectual property almost freely available within the Open Source Software;

Fig. 22



- The utilization of OSS in the mobile telephone infrastructure for health and commerce. The projects involved: -

- The development of a prototype to enable medical practitioners to enter clinical data using mobile devices as well as to access patient's record using the same mobile devices. The prototype serves to promote the technology for use by medical institutions (hospitals, clinics, mobile health centers, etc);
- Research work to demonstrate the importance of using a simplified Ethiopic script for on-line Ethiopic handwriting recognition was completed. The research showed that reasonable recognition rates could be obtained in spite of the complexity of the original Ethiopic script; and
- A prototype for an E-payment system based on OSS was developed. It is accessible from mobile devices as well as from a computer interface.

Fig. 23: Mobile Medical Prototype Main



Achievements

The AAU VarsityNet research studies registered measurable success at the Addis Ababa University and the R&D capacity, output and visibility of the Department of Computer Science increased significantly as a result of the project.

VarsityNet activities have increased policy maker awareness of the potential benefits of using OSS and the need for human capacity development to building a critical mass of skilled human capital in this domain. The activities have demonstrated that OSS is not only a useful and significant tool for developing countries, but has the potential to herald democratization and addressing some of the most fundamental challenges faced by the populations of developing countries.

These projects have directly contributed to the growth of the Ethiopian Open Source community, mainly through the establishment of the Ethiopian Free and Open Source Network (www.efossnet.org), which has witnessed a marked increase in open source localization projects in many Ethiopian colleges such as the Hilcoe School of Computer Science and Technology. FOSS is no longer considered an “inferior” software product, but an alternative for the country as evidenced by the adoption of FOSS as a platform for ICT infrastructure by the Engineering Capacity Building Program.

The invaluable expertise gained in the area of localization and FOSS has led to the recommendation of establishing a FOSS and localization centre at the Department of Computer Science. This would serve as:

- An observatory of localization for Ethiopia in particular, and Africa in general;
- A centre of excellence for research and development on FOSS and localization;
- A coordination focal point for FOSS and localization projects in Ethiopia; and
- A centre for information on FOSS and localization.

AAU VarsityNet has enabled a high number of Masters' students and researchers in Ethiopia to undertake R&D activities of significant importance through the provision of otherwise unavailable resources.

Challenges and lessons learnt

Some of the implementation challenges of the AAU VarsityNet include:

- Limited research and development experience and interest in the country leading to difficulties in sourcing for the requisite funding for implementation;
- Difficulties in motivating the private sector to utilize the results produced by the researchers;
- Lack of language resources since because unlike most European languages, African languages have not been studied formally to a level that is required for localization. As a result, the ICT researchers had to engage in linguistic work outside their scope of expertise; and
- Limited inter-university communication as evidenced by the virtually non-existent communication among university researchers. This creates unnecessary redundancies and renders the work of new researchers very difficult.

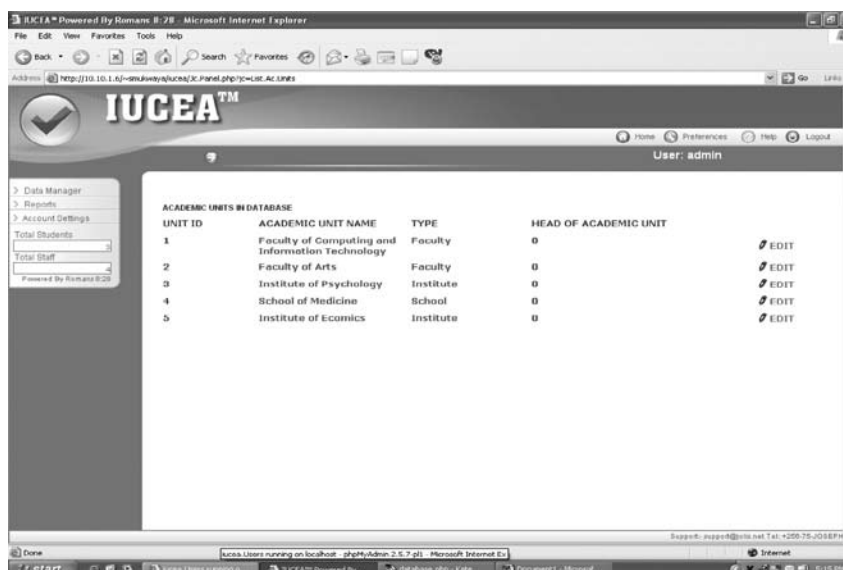
7.3.2 The Inter-University Council of East Africa (IUCEA) Network activities

Two projects, based on Free and Open Source Software (FOSS), were developed under the VarsityNet programme. These were undertaken in collaboration with the Inter-University Council of East Africa (IUCEA) comprising the Universities of Nairobi (Kenya), Makerere (Uganda), Dar-es-Salaam (Tanzania) and the Jomo Kenyatta University of Science and Technology (Kenya).

These projects undertaken were:

- Software Research on e-Government:
 - A pilot project for East Africa - a prototype application was developed based on OSS supporting the International Fellowships Programme (IFP) to demonstrate how an activity of IUCEA could be better managed; and

Fig. 24: A display of available academic units under a given university



- Development of an inter-university Students' Information Management System (SIMS). The system was implemented and is operational within member States universities.

Achievements

One of the primary outcomes of the VarsityNet project is the successful establishment of a collaborative framework. The project has improved dialogue amongst East African universities thereby enabling them to understand the intellectual leadership role that academia should play in the process of building the African Information Society.

The IUCEA R&D activities have enhanced the research capacities of universities, especially with respect to software development using OSS. Expertise on open source technology is still at its infancy in the region and the cooperation has ensured that available knowledge is shared amongst cooperating institutions for maximum benefit. This project has underscored the need for a systematic programme on research especially as universities in the region presently operate within stringent budgetary constraints. Innovative research resulting in the development of more cost-effective solutions is imperative and harnessing the potential of open source software is one of these innovations.

Challenges

The challenges for the IUCEA Network were generally similar to those experienced by the AAU Network especially in relation to limitations in R&D experience, funding, private sector involvement and inter-university collaboration.

VarsityNet has however enabled universities to critically examine and understand their own limitations and begin to develop homegrown solutions to address these limitations as evidenced by the two tangible information system products developed during the two phases of the project. Universities have been able to identify areas for further cooperation by developing a framework within which they may work with other organizations in the pursuit of their research and development goals. It is imperative that universities continue to seek for to provide solutions to existing problems and creating innovative approaches to prevent their recurrence in the future.

The programme exposed areas where universities lacked adequate potential and approaches to address Information Society challenges. Regional universities do not all possess adequate expertise on OSS and for systems to be properly implemented, training in OSS is critical, coupled with knowledge sharing amongst institutions.

VarsityNet has enabled East African universities to acknowledge their critical role and contribute to raising the citizens overall quality of life.

7.4 Academia Research Network (ARN)

The ARN was launched in December 2003 during the first phase of WSIS, having originated from a *Visioning Retreat*²⁶²⁷ on the theme “Intellectual Leadership and the African Information Society Initiative.”

The Retreat was organized by ECA and the Ford Foundation in June 2003 to prepare the African academia to reflect upon their role in the Information Society and to sensitize them to the WSIS process. The creation of an ARN was proposed as a concrete follow up activity of the Retreat.

Based on a consultative process with key academics on the African continent, four thematic research networks were launched in line with the objectives of the AISI, the ALN VarsityNet programme and the WSIS Action Plan.

The ARN thematic research networks focused on the following themes:

- Information Society Indicators;
- African languages and content development in cyberspace;
- Industrialization of ICTs in Africa; and
- Creating enabling environments.

7.4.1 ARN -Information Society indicators

Recognizing the crucial role that ICTs play in facilitating socio-economic development, a number of countries, have either put in place or are in the process of developing ICT for development policies and strategic action plans to facilitate the process of transforming their economies and societies. To support these efforts, there is a need to develop indicators for the targets set in the WSIS Action Plan “as global references for improving connectivity and access in the use of ICTs” which are to be achieved by 2015. The WSIS Action plan recommends the development of indicators for monitoring implementation between the two WSIS phases.

The Network for Research on Information Society Indicators brought together nine academics and researchers from Tunisia, Morocco and Rwanda who worked on three key research topics:

- Review and refining Information Society indicators, benchmarks and methodologies such as the SCAN-ICT with to the aim of monitoring the progress achieved in the local, national and regional context;
- In-depth analysis on ICT penetration and impact on society by using the data and information collected through various indicator initiatives; and
- Building capacity among research institutions and researchers on Information Society indicators so as to ensure sustainable involvement of African Academia in measuring the impact on society.

The ARN group on Indicators accomplished the following:

- Prepared a state of the art of the major Initiatives on Indicators (International bodies, regional organizations);

²⁶ <http://www.uneca.org/aisi/academiaretreat.htm>

- Reviewed available outcomes of these initiatives in real field applications with a special focus on African countries; and
- Developed a Reference Model encompassing the main features of the Geneva Plan of Action and allowed a thorough comparison of the existing initiatives.

The Reference Model highlighted the strengths and weaknesses of existing initiatives and proposed remedial measures. This work of the group would also assist in analysing any on-going (e.g. WSIS partnerships) or new initiatives whilst defining a complete set of reference indicators.

On the relevance of the ARN, the coordinator of the ARN Information Society Indicators Network, Mr. Farouk Kamoun noted that,

“The ARN is a very important instrument to foster research within academia on important and quite complex issues, such as the development of indicators of various types (usage, impact), methodologies for measurements and interpretations. As such, it will give strong theoretical and methodological support for people involved in the day-to-day development of the Information Society.”

7.4.2 ARN-African languages and content development in Cyberspace

Africa cannot afford to ignore the issue of languages in the development and building of an Information Society with over 2000 languages, representing a third of all the languages worldwide. The advent of globalization and the new ICT's, as manifested through the reinforced use of European languages, has yet to provide a solution to the communication problems of the majority of African citizens who in their daily social interactions use African languages. African local languages can become marginalised as communities are more isolated, estranged and endangered because their languages, identities, values and practices are non-existent in this new arrangement. Efforts need to be made to include the use of local languages in the electronic world if the majority of Africans are to gain access to the Information Society. Given that Africa is under-represented in the global Information Society, there is a need to build capacity to produce and collect accurate and relevant local content in official and national languages, recognizing oral and traditional forms of communications.

The ARN Group on African Languages and Content Development in Cyberspace focuses on the technical aspects of the use of extended Latin-based character sets and non-Western scripts on computers and the Internet. Other issues include:

- Synchronization of content development in local languages and African ICT policies;
- Determining the economic, political and technological aspects of language development in the Information Society;
- Building individual and institutional capacities for addressing language needs in the academic community;
- Providing an information and knowledge infrastructure for local language exchange and dissemination;
- Creating a continental team of teacher and researchers in computational linguistics;
- Undertaking a baseline study on the current state of African languages and content development in the cyberspace; and
- Launching an optional pilot program in computational linguistics in computer at Bamako University.

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

The research entailed the following:

- Mapping existing public and private initiatives to enable African language use on computer appliances;
- Analysis on political, economic, socio-linguistic and structural challenges and obstacles to promote African languages on the Internet;
- Follow-up strategies for networking among researchers to scale up their capacity and enhance awareness among stakeholders and policy makers;
- Creation of a continental team of academics and researchers in computational linguistics; and
- Use of ICTs in two African languages on the basis of well-defined content.

7.4.3 ARN - ICT industrialization

In the context of ICT Industrialization in Africa, it is widely recognized that Africa's digital economy is characterized as a net importer of all ICT products – computers, communication equipment, software and related services.

Digital inclusion in the African context entails support and access to information and communications manufacturing capabilities especially with regard to low cost and appropriate technologies among other issues. African countries are developing ICT policies and strategies that promote the establishment of local ICT industries to facilitate the production, manufacturing, development, delivery, and distribution of ICT products and services. In some African countries ICT manufacturing capabilities are being encouraged through providing support to local ICT companies involved in innovative activities such as setting up IT parks.

The research network identified pre-requisites needed for ICT industrialization to succeed in Africa as well as limitations, impediments and gaps, which prevented academia and the private sector from fully participating in the process.

The network addresses the following issues:

- Advising countries on more strategic choices and potentials for ICT industrialization and manufacturing capacity;
- Proposing a regional integration programme in the area of ICT industrialization;
- Assessing good practices and lessons learned from around the world; and
- Designing public-private partnership mechanisms and models with a clearly defined role for academia.

The research group conducted research in Ethiopia, Mozambique and Tanzania and identified pre-requisites for successful ICT industrialization in Africa. The following issues were identified for follow-

up action: capacity building, incubation, hardware and software development, R&D and knowledge creation.

In Mozambique, in addition to these activities, the project will assist the country's ICT Policy and Strategy Committee with incorporating ICT industrialization/innovation and research components in the policy and implementation process. E-Learning centres and a Technology Applications Development Centre will be established.

7.4.4 ARN-Creating an enabling environment

Members of the network assessed the global and regional environments in African and recognized the importance of working within the framework of AISI and the New Partnership for Africa's Development (NEPAD) in line with the overall objective of the first phase of WSIS to increase awareness among African policy-makers of the role of the Information Society.

The specific objectives of the research team were to:

- Identify obstacles and shortcomings with respect to access (universal and equitable, interconnection);
- Address issues of standards at local, national, regional and international levels (e-fraud) as well as determine the efficient use of documents and e-transactions that can lead to the development of an e-economy in Africa; and
- Identify the different components related to cultural, linguistic, traditional and religious values with respect to the Information Society.

The network formulated a short-term action plan to develop and implement ICT diagnostics in Africa (e-audit) to address the following:

- Constraints in expanding access to information and services in Africa;
- Bottlenecks in developing the local ICT private sector;
- Challenges associated with the development of an equitable governance structure of the Information Society; and
- Obstacles in the development an e-economy in Africa.

The audit would take the form of a review of the existing materials, data and information and in addition, the researchers would develop strategies for effective:

- Legislation and regulatory frameworks;
- Capacity of ICT players;
- Capacity in privacy and security issues;
- Special needs of vulnerable and marginalized groups; and
- Cultural, linguistic, traditional and religious values and factors, which encouraged or discouraged the development of the Information Society.

On the use of research results, Mr. Abdullah Cisse, the coordinator for the ARN Creating an Enabling Environment Network noted that, *"What we've learnt is we must continue to refine and harmonize the methodological approach. We must allow for the use of the results of the research in all African States."*

The World Summit on the Information Society (WSIS)

8.1 Background

On 21 December 2001, the United Nations General Assembly adopted Resolution 56/183 concerning the organization of a World Summit on the Information Society (WSIS). The World Summit provided a global platform where key players: governments, United Nations agencies, private sector, civil society, came together to develop a common vision and an understanding of the Information Society and to adopt a declaration and a plan of action as well as an agenda to facilitate the effective growth of the Information Society in order to help bridge the Digital Divide.

The Summit was held in two phases, the first phase in Geneva from 10-12 December 2003 and the second phase in Tunisia from 16-18 November 2005. The Geneva Phase adopted the “WSIS Declaration of Principles” and the “WSIS Plan of Action.” The Tunis phase adopted the “Tunis Commitment” and the “Tunis Agenda for the Information Society.”

8.2 AISI and the WSIS process

In Africa, the WSIS process went through two regional preparatory conferences, held respectively in Bamako in 2002 and Accra in 2004, and

yielded the African Regional Plan on the Knowledge Economy (ARAPKE) in 2005. The entire regional WSIS process was based on the AISI vision and geared towards implementation of its objectives, as reflected in all the background documents, which were prepared to support the African regional preparatory conferences and ARAPKE. In addition, throughout the process, ECA coordinated participation of African delegates by organizing the preparatory conferences, hosting the secretariat of the African Ministerial Committee on ICT and coordinating the elaboration and implementation of ARAPKE.

8.3 The First African Regional Preparatory Conference on the WSIS

Known as Bamako 2002, the First African Regional Preparatory Conference was held in Bamako, Mali from 28-30 May 2002 in the framework of AISI. Participating in the Conference were representatives of 51 African countries, delegates from many other countries and people representing African and global organizations, the private sector and civil society. Two Heads of State, His Excellency Mr. Alpha Oumar Konare, President of the Republic of Mali, and His Excellency Mr. Abdoulaye Wade, President of the Republic of Senegal, graced the opening ceremony. Fourteen

pre-conference workshops were organised from 25 to 27 May 2002. In addition the following four workshops and 1 round table were organized:

- What the Information Society brings to Africa
- What Africa brings to the Information Society
- What Africa wants to preserve in the Information Society
- How Africa can benefit from the Information Society: Round Table on the digital divide
- Round Table on Africa's image in the media

The Conference adopted the Bamako Declaration, which served as Africa's negotiation tool during the Phase I of the WSIS. The Declaration "requests the international community to give its full support to the African Information Society Initiative (AISI)."

Bamako 2002 Conference elected a Bureau that unanimously recognized and commended ECA's continuous role in African information society developments and requested ECA to serve as the Secretariat for Africa's participation in WSIS activities. In this regard, a website was launched for Bamako 2002 (www.uneca.org/aisi/bamako2002) and a discussion list (bamako2002@discussion.unecalist.net) launched for Bureau members.

8.4 The Second African Regional Preparatory Conference on the WSIS

The Second African Regional Preparatory Conference for Phase II of the WSIS was held in Accra, Ghana from 2-4 February 2005 in the framework of AISI and NEPAD. The Conference was organized by the ECA and its partners, and hosted by the Government of Ghana. Participating in the Conference were the African Union Commission, government delegates from ECA member States, private sector and civil society organizations, as well as representatives of international and partner institutions and agencies of the United Nations.

The theme for the conference was "***Access: Africa's key to an Inclusive Information Society.***"

The following six themes were thoroughly discussed by the Conference:

- Financing the Information Society;
- Indicators and benchmarking;
- ICTs for socio-economic development;
- Access and infrastructure;
- Industrialization; and
- Internet Governance.

There were fourteen pre-conference workshops and meetings were held from 28 January to 1 February 2005. These sessions produced recommendations that were further discussed and endorsed by the main conference that took place from 2 to 4 February 2005. The Conference concluded its deliberations with a document, entitled Accra Commitments for Tunis and related resolutions as adopted by the Conference on 4 February 2005. The Conference elected the African Ministerial Committee for the WSIS, for which ECA was chosen as the Secretariat.

8.5 AISI e-discussions with stakeholders

With preparation for both phases of the Summit, ECA through electronic discussion lists has engaged various stakeholders including civil society, academia, Africans in the Diaspora, the public sector, media and the private sector on their views concerning the Information Society. These lists, which are still active, are:

- *AISI Civil Society List*, which was actively used by African civil society to prepare themselves for the Summit in Geneva and for Tunis;
- *AISI Diaspora List* aimed at engaging African Diaspora on ICTs for Africa's social and economic development and to seek their input into the WSIS process;
- *WSIS African Government Focal Points List*, established for government point persons for WSIS where African governments can share experiences and lessons about preparations at national and regional levels to ensure adequate and active African participation;
- *The Media List*, launched as a result of the recommendation emanating from the Second Media Forum that was held in Addis in May. It also provided a platform for African media to mobilize themselves for the Summit and discuss African issues on the Information Society; and
- *The Academia List* was set prior to the Retreat for African Academia and the Information Society to determine how higher education institutions can contribute to ICT development in their countries and to sensitize them on the priority issues for Africa with regards to the Summit.

8.6 The African Regional Action Plan on the Knowledge Economy (ARAPKE)

The ARAPKE was requested through a recommendation of the Second African Regional Preparatory Conference for the WSIS, held in Accra, Ghana from 2-4 February 2005, which stated: "Africa should develop a plan of action containing specific ICT development projects, which are properly costed to be presented at WSIS 2005 for financial resource mobilization." The Khartoum Summit of the African Union also urged the continent to develop an Action Plan through the African Union Commission. The Action Plan is based on the "Accra Commitments for Tunis 2005" and the vision defined by both the AISI and the New Partnership for Africa's Development, under the political leadership of the African Union. It is Africa's roadmap on ICT for the next 10 years. The ARAPKE Framework is in the annex of this document.

By building upon the recommendations and results reached during the Accra Conference, the Regional Action Plan was prepared for rolling out the Information Society on the continent. In addition, the Action Plan is expected to contribute to the realization of the Millennium Declaration Development Goals (MDGs). Within this context, it is designed to:

- Define an African approach and positions in the process of preparation of the Phase II of WSIS, to become the African approach in the current debate on the primary issues of the WSIS; and
- Create a foundation for national, regional and international cooperation over a period of 10 years (2015) with the aim of improving the life of African citizens.

Preparation of the Action Plan was coordinated by ECA, which drafted a framework and circulated it on various discussion lists to seek the contributions and views of stakeholders. The first meeting on the Action Plan was held on 24 April 2005 in Addis Ababa and attracted seventy-two experts from African countries and guests from other regions. The major contributors to the ARAPKE framework are members of the African Technical Committee on the AISI and the Bamako Bureau. The list of ARAPKE theme coordinators is attached in the annex to this document.

By the end of December 2005, eighty-nine project proposals were received from African stakeholders and regional / international organizations for inclusion in ARAPKE for funding. However following the Conference of African ICT Ministers held in Cairo on 20 April 2006, a decision was made to select a maximum of 15 projects from ARAPKE for submission to a resource mobilization conference to be held in December 2006. Following this decision an ARAPKE meeting convened by Egypt in September 2006 and chaired by ECA examined various project proposals and adopted criteria for selection and follow up of ARAPKE projects. They are listed in the annex to this document. ECA was elected Chair of the ARAPKE Working Group, whose main objective is to coordinate project selection, implementation follow up.

8.7 Implementing the WSIS Outcomes

The WSIS process has raised awareness in most African countries and their leaders are committed to establishing an enabling environment, institutional structures and related capacity building components. This is not only reflected in the ECA document “Benchmarking the Plan of Action of the WSIS in Africa” (published in October 2005) but also in the debates in which African leaders participated during the final phase of the WSIS.

Having played a central role in the WSIS process since the first African Regional Preparatory Conference on the WSIS held in Bamako in May 2002 to the second phase of the Summit in November 2005 in Tunis, ECA continues its support to member States, through the renewed AISI vision and is committed to assisting African nations in implementing the WSIS outcomes as directed by both the Commitment and the Tunis Agenda for the Information Society. Indeed the role of the United Nations regional commissions has been clearly identified in the Tunis Commitment and amplified through concrete actions in the Tunis Agenda.

Partnerships for Promotion and Implementation of AISI

9.1 Background

As mandated by its 1996 Conference of Ministers, ECA serves as the secretariat for the implementation of the AISI. ECA's role is essentially one of integration and facilitation. In this regard, it has joined hands with multilateral, bilateral and non-governmental partners and the private sector. The Partnership for Information and Communication Technologies in Africa (PICTA)²⁷ is an important aspect of ECA's work. PICTA is a network of representatives of key organisations and countries working in information technology for development, which meets virtually via an electronic discussion list, physically on an annual basis and on the occasion of other major meetings on ICT's. Any development-executing agency with programmes on ICT in Africa is at liberty to join PICTA.

ECA is also a leading member of the Global Knowledge Partnership (GKP)²⁸. In recognition of the Commission's leadership role in information technology and development, the GKP requested the Executive Secretary of ECA to open the Global Knowledge II Action Summit and Forum, held in Kuala Lumpur, Malaysia in March 2000. ECA will also feature prominently in GKIII.

The Acacia Programme led by IDRC aims at empowering sub-Saharan African communities with the ability to apply ICT's to their own social and economic development. Since the launch of the Acacia Program,, there has been close collaboration between ECA and IDRC in working with African countries in designing and implementing sectoral projects for the populace and also in preparing national e-strategies.

Cooperation with Finland and the European Union has facilitated setting up the SCAN ICT Project and funding the development of NICI plans in selected African countries.

In the framework of the United Nations Special Initiative for Africa (UNSI) Programme which was co-chaired by UNDP and ECA, and under the Harnessing Information Technology for Development (HITD) cluster of this Initiative, all the UN organizations which are operating in Africa, have rallied to cooperate in programmes and project implementation in this area. These include, ECA, ITU, UNDP, UNESCO and the World Bank.

Some of the key initiatives which have played an important role in AISI implementation had an impact in ICT development in the continent are examined further below. These include PICTA, ACACIA, UNSIA, the UN ICT Task Force, Global Knowledge Partnership (GKP)²⁹, Swiss

²⁷ <http://www.uneca.org/aisi/picta>

²⁹ <http://www.globalknowledge.org>

Development Cooperation (SDC), e-PolNET, Finland, and Partnership for Measuring ICTs for Development.

9.2 Partnership for ICTs in Africa (PICTA)

During the “Donor and Executing Agency Meeting on Information Technology for Development in Africa” held in Rabat (Morocco) from 16-18 April 1997, representatives of 17 UN and other development agencies, involved in ICT development in Africa, agreed to establish a forum called PICTA for donor/executing agencies collaboration within the framework of AISI and to set up common information resources on the Internet for ICT related development activities.

PICTA builds on the work of the African Networking Initiative (ANI) and the African Internet Forum (AIF). PICTA was set up to assist in the development, follow-up and coordination of the implementation of the AISI. Members of this regional coordinating committee are ECA’s institutional partners from the United Nations system, bilateral and non-governmental organizations and representatives from the private sector involved in implementing AISI projects and programmes in Africa.

During the Rabat inaugural meeting it was agreed that PICTA members should be organisations, which have a strong interest in improving the use of ICT as a tool to improve economic and social development. This interest should be manifested by past and ongoing expenditures or project execution and commitments made for future activities in this field. Those would also include:

- Appropriate transparency in programming, management and reporting about the activities;
- Interest in collaborative/co-operative arrangements aiming at complementing and strengthening the initiatives of the group’s partners rather than to finance overlapping or competing initiatives; and
- Commitment to physically or electronically attending meetings of the group

A proposed initial list of themes corresponding to the following sub-programme areas of the AISI framework was adopted for cooperation among PICTA members:

- Policy awareness;
- Connectivity;
- National information and communications infrastructure plans;
- Telecentres and democratisation of access;
- Sectoral Programmes (could be sub-lists for each sector as well);
- Training; and
- Development and information.

PICTA publishes a database, a website and a newsletter and maintains an on-line discussion list for information exchange.

Its recent activities were based on the PICTA Action Plan that focuses on areas such as

- Creating awareness of ICTs in Africa;
- Supporting knowledge sharing communities;
- Scoping ICT needs and priorities in Africa;

- Achieving better co-ordination;
- Bandwidth for Higher Education in Africa; and
- Local Government capacity building in ICT use.

9.3 ACACIA

Acacia represents Canada's contribution to the AISI. At the time of the launch of AISI in 1996, considerable scepticism prevailed about the development potential of ICTs. Few donor and development agencies were investing in ICTs for development and even private-sector interest was limited. Few African countries were connected to the Internet and new policies on ICTs and liberalisation of the telecommunications sector had only begun to surface in a few countries. That was the context in which the International Development Research Council launched the Acacia I program in 1997 as the "Canadian contribution towards helping sub-Saharan Africa meet the objectives of AISI"³⁰³⁰. It had three goals:

- Demonstrate that the benefits of ICTs can reach disadvantaged sub-Saharan communities and the women and youth within these communities, and can amplify their inherent innovativeness and enterprise to help these communities solve their development problems;
- Learn from Acacia's community-based research and experimentation and to disseminate this knowledge widely; and
- Build international momentum and buy-in in order to continue expansion of access to ICTs by rural and disadvantaged groups.

The Acacia Program included social investments in pilot multi-purpose community telecentres, school networking activities and accelerated ICT policy development initiatives in each Acacia country, as well as considerable investments in evaluation and related research. Following a successful evaluation of the ACACIA I project, a second phase was launched with a focus on the Knowledge Economy and the following objectives:

- Enhance understanding and knowledge of the innovative, transformative or dysfunctional effects of ICTs in poverty reduction and human development in Africa;
- Improve African countries' capacities to formulate and implement national ICT policies that promote equitable access to ICTs and information for socio-economic development;
- Contribute to research in appropriate ICTs that support development and adoption of affordable and functionally relevant technical solutions for Africa;
- Support research that increases African content on ICTs through software development for effective application of ICTs for development; and
- Learn from Acacia's community-based research and experimentation and to disseminate this knowledge widely.

9.4 UNSIA

The United Nations System-wide Special Initiative on Africa (UNSIA) was designed to rationalize United Nations assistance to Africa, including that of the Bretton Woods institutions, through more effective coordination, synergistic actions, capacity building and facilitating genuine partnerships. The UNSIA was therefore launched firstly, to help Africa help itself and secondly, to ensure that the United

30 www.idrc.ca/acacia/

Nations system's commitment to support Africa's development efforts was sustained in a comprehensive and coherent manner.

ECA's leadership in Harnessing Information Technology for Development (HITD) resulted in the agreement that AISI became the implementation framework for UNSIA. The harnessing information technology for development programme of the UNSIA aimed at:

- Intensification of policy dialogue on regulatory framework for informatics and communications through national policy and sectoral workshops;
- Establishment of a regional commission on information technology and communications;
- Installation of Internet nodes with local servers to provide Internet services in eight countries;
- Training of system engineers operators and information users throughout Africa in computer networking; and
- Establishment and operation of an electronic clearinghouse on African development information.

ECA and UNESCO were the joint co-ordinators of the activities of the UNSIA-HITD programme within the framework of the AISI.

Raising awareness of the challenges and possibilities for Africa in the information age was the main objective of the HITD cluster. Several activities of the cluster have been jointly implemented, through inter-agency partnerships. The last meeting of UNSIA held in Addis Ababa in June 2000 recommended a more systematic exchange of information, and the creation of a regional strategic paper to improve UN co-operation to identify theme areas where organisations want to invest in activities. The UNSIA activities and functions were inherited by the Regional Consultations of the UN Agencies Working in Africa in support to NEPAD.

9.5 UN-ICT Task Force

In November 2001, the United Nations Secretary-General, Mr. Kofi Annan, established the Information and Communication Technologies (UN ICT) Task Force to coordinate the United Nations' agenda for bridging the digital divide and reinforcing the use of ICTs in support of the Millennium Development Goals (MDGs). During the official launch and first working session of the Task Force, a decision was made to constitute four regional networks in Africa, Latin America, Asia and the Middle East that would feed into the work of the Task Force. Its main objective was to find new, creative and quick-acting means to spread the benefits of the digital revolution and avert the prospect of a two-tiered world Information Society.

The Task Force was composed of representatives of the public and private sectors, civil society and the scientific community. Leaders of the developing and transition economies as well as the most technologically advanced were also part of the Task Force. Operating under the aegis of the United Nations, it facilitated the building of partnerships among various stakeholders. It was not an operational or executing agency. However, the Task Force facilitated the identification of the appropriate institutions to execute the programs.

ECA was the regional node and the host of the African Stakeholders Network (ASN) of the UN ICT Task Force under the framework of AISI. ASN was established in January 2002 with the setting up of a Committee of Stakeholders.

The mandate of the Task Force ended in December 2005 and a new organ was created as the Global Alliance on ICT and Development. Taking advantage of existing networks and institutions, the mission of the Alliance is to respond to the need and demand for an inclusive global forum and platform for cross-sectoral policy dialogue, conducted in an open, multi-stakeholder and transparent manner, on the use of ICT for enhancing the achievement of internationally agreed development goals, including the MDGs, notably reduction of poverty. ECA is the regional coordinator of the Alliance in Africa.

The Alliance seeks to achieve the following objectives:

- Mainstreaming of the global ICT agenda into the broader United Nations development agenda;
- Bringing together key organizations involved in ICT4D to enhance their collaboration and effectiveness in the use of ICT for development and the achievement of the internationally agreed development goals;
- Raising awareness on ICT4D policy issues;
- Facilitating identification of technological solutions for specific internationally agreed upon development goals and promoting pertinent partnerships;
- Creating an enabling environment and innovative business models for pro-poor investment and growth, and for empowering people living in poverty; and
- Acting as a “think-tank” on ICT4D-related issues and as an Advisory Group to the Secretary-General.

9.6 The Africa node of the Global ePolicy Resource Network (e-PolNET)

In the DOT Force Plan of Action endorsed by G8 Leaders at the 2001 Genoa Summit, a commitment was made to establish a *Global ePolicy Resource Network (ePol-NET)*, designed to marshal global efforts in support of national e-strategies for development. The network, formally launched in December 2003 at the WSIS in Geneva, is providing a global partnership mechanism for bringing together providers of e-strategy information and expertise for the benefit of individuals, organizations and governments.

The Africa Node of the ePol-NET, launched earlier in May 2003 during the third meeting of ECA's Committee on Development Information (CODI), is set up to address policy issues, regulations and strategies in areas such as e-commerce, legal and policy frameworks, telecommunications policy and regulation, Internet governance, e-government and connectivity strategies. The Economic Commission for Africa, with support from the Government of Canada set up the African regional node to the ePol-NET. The Canadian partners to the Africa Node of the ePol-Net are Industry Canada and the Canada ePolicy Resource Network (CePRC).

There has been from the onset consistent dialogue and collaboration with CePRC and Industry Canada on each and every activity, making this a unique partnership. The main areas of activities include

joint administration of ePol-NET Africa, joint workshops and seminars, Canadian expertise to African policy makers and African fora, and joint exhibitions.

The Africa node has been able to provide assistance to countries and regional economic communities in the formulation of sectoral and regional strategies to achieve the implementation plans stated out in national e-strategies.

Activities also took place with the parliaments of Tanzania, the Gambia, Niger and Swaziland to set up an ICT for Development Network of MPs. The activities also resulted in establishing a standing committee of ICT in the parliaments. The aim is to get the involvement of the various stakeholders in the NICI (policy development) processes of the respective countries.

ePol-NET has also been facilitating dialogue among multi-actors for democratizing access. The first workshop for West African Francophone countries held in Dakar, Senegal aimed at building the capacity of decision makers in the region in the elaboration of national policies and strategies that focus on the democratizing of access to ICTs. This is through dialogue among regulators, legislators, public decision makers and private sector users of ICTs. The ultimate goal is to facilitate the identification of the participants for the most suitable way of guaranteeing the democratization of access to ICTs in rural areas. The workshop proposed to present and replicate best practices identified in other regions. This was followed by a workshop in Douala, Cameroon in June 2006 for Central African countries. A similar workshop for countries of Southern and Eastern Africa is scheduled in Kigali, Rwanda. It also selected Niger and Senegal as pilot countries to implement the outcomes of the Dakar workshop.

9.7 Swiss Development Cooperation (SDC)/Global Knowledge Partnership

ECA has been able to obtain the support of the SDC in the provision of fellowships to participants of the World Summit on Information Society (WSIS) Regional Conference in Accra, Ghana and the Media in Africa Information Society Forum, a side event at the Accra Conference. The overall goal of the forum was to build a critical mass of journalists that can specialise on Information Society issues whilst promoting awareness in society based on the AISI media-training module. The forum also helped to create an African media ICT4D framework conducive to sustaining the overall goal. Following the discussions where the participants acknowledged the role of the media in the process of building an inclusive knowledge society, they came up with a number of resolutions regarding the role of the media in the WSIS in particular and the information society building process in general.

The ECA, as the convenor of the GKP Africa, facilitated the participation of GKP Africa members to the Tunis WSIS with support from the SDC. In addition to participating in the WSIS and promoting the interests of their constituencies, members of the GKPA held meetings among themselves to strategize their activities following the WSIS.

The 2005 annual PICTA meeting took place in Addis Ababa, Ethiopia from 7 - 8 September 2005 under the theme of Networking Development in Africa. The core PICTA partners put extra effort into strengthening PICTA as an arena for collaboration among the key institutions involved with ICT and

Knowledge for Development in Africa. To achieve this goal the annual meeting was joined by GKP Africa members and held as a PICTA-GKP meeting. The participation initiated a non-donor/ donor interaction and provided a good opportunity to encourage the two collaborations to cooperate and avoid duplication.

The Global Knowledge Partnership (GKP) supported a regional workshop for its members from Africa and Middle East and North Africa (MENA) regions. As the coordinator of GKP Africa, ECA hosted this joint GKP Africa-MENA regional workshop in Addis Ababa, Ethiopia from 10 to 11 July 2006. The main purpose of the workshop was for the GKP Secretariat to help both regional networks to streamline and harmonise their proposed regional work plans to qualify for GKP Seed funding. In attendance were 9 participants from GKP Africa members including ECA, Fantsuam Foundation, Protege QV, SIDAREC, Azur Development, SchoolNet Africa, and IFLA; as well as a representative from NetCorps. GKP MENA had 6 participants representing members including DIDACTICA, Science and Arts Foundation, Sustainable Development Association, Ministry of Communications and IT of Egypt, and Agent Consulting Egypt. Discussions were generally centred on better understanding of the regional work plan development process. The outcome of the workshop was an agreement by all participants to update and submit revised regional work plans.

9.8 Finland

Through the framework of the cooperation between ECA and the Government of Finland, a number of activities were undertaken in implementing the programme. These include the development and implementation of national eStrategies (NICIs), development and collection of data on ICT indicators (Scan-ICT programme), supporting Regional Economic Communities (RECs) in the harmonization of ICT strategies in their respective sub-regions, as well as conducting research and innovation pilot programmes in key areas in selected countries.

With regard to formulation and development of NICIs, a number of countries have continued the process and some completed their NICI plans and strategies during the reported period.

All the five countries (Cameroon, the Gambia, Ghana, Mauritius, and Rwanda), which were participating in the Scan-ICT Phase II project, launched the process during the reported period, and Cameroon has completed the project, while the others are at the final stage of the process.

At sub-regional level, the Economic and Monetary Community of Central Africa (CEMAC) and Economic Community of West African States (ECOWAS) are developing a harmonised legal framework in their respective sub-regions.

The African Academia Research Network (ARN) is undertaking research and innovation programmes in four countries: Cameroon, Ethiopia, Mozambique and Tunisia; in areas focusing on local languages, localization, ICT industrialization, and ICT4D impact indicators.

9.9 Partnership for Measuring ICTs for Development

ICT statistics and indicators are crucial for formulating policies and strategies concerning ICT-driven or ICT-enabled growth, for social inclusion and cohesion, and for monitoring and evaluating ICT-related economic and social developments. They help companies take the right investment and business decisions and allow developing countries to benchmark their information economies against those of other countries, both developed and developing. They also contribute to documenting the impact of different technologies in achieving internationally agreed goals such as the Millennium Development Goals (MDG).

But only few countries collect official statistics on the Information Society, and most of the available data and indicators are not internationally comparable. Some National Statistical Organizations (NSOs) have started to compile data on ICT use, but much remains to be done. Therefore, the international community has taken a number of steps to enhance the availability of comparable ICT data and indicators. An international, multi-stakeholder *Partnership on Measuring ICT for Development* was launched during UNCTAD XI in June 2004. Current partners include the ITU, the OECD, UNCTAD, UNESCO Institute for Statistics, the UN Regional Commissions (ECLAC, ESCWA, ESCAP, and ECA), the UN ICT Task Force, the World Bank, and EUROSTAT.

As mentioned in the Chapter on ICT indicators, ECA, together with partners such as IDRC, has been very active in the ICT measurement activities since 2003 through its Scan-ICT programme. As a follow up to the Scan-ICT process, ECA is also actively participating in the international Partnership and coordinates the Partnership's eGovernment indicators programme.

Lessons Learned and the Way Forward

10.1 AISI overview

The AISI framework identifies inter alia priority challenges, which hinder African development and some of the opportunities that ICT offer to African countries for combating these problems. Challenges and opportunities for the following priority areas were identified as follows: job creation, health, education and research, culture, trade and commerce, tourism, culture, food security, gender and development, as well as man-made crises and other natural disasters. These areas are already linked to the MDGs.

Access to basic ICTs can enable farmers and local entrepreneurs to get access to new agricultural techniques, to meteorological forecasts and to distribution markets in order to identify the appropriate farming techniques to be used, the suitable time to plant and harvest and the best price for which their products are to be sold.

In the area of education, the Internet can enable access to a number of unlimited data bases, computing facilities, libraries, documentation centres, archives, research laboratories, on-line newspapers and learning societies for the cost of a local telephone call. Hence major transformations can occur in the African research environment if ICT is fully used to assist students, researchers, decision makers and the public at large to get access to opportunities for lifelong learn-

ing and a reinvigorated and improved education. AISI identifies the following opportunities to be seized by African countries to improve literacy rate and minimize lack of teachers and schools as well as educational materials:

- Providing equitable remote access to resources in support of both distance education and strengthening of local education capacity, connecting schools, universities and research centers to national and international distance education facilities, national and international databases, libraries, research laboratories and computing facilities;
- Reducing communications and administrative costs by building communications networks linking all educational establishments;
- Promoting and supporting collaboration among teachers and researchers; Extending the reach of educational facilities in informal learning, especially to community level.

Furthermore, ICT in support of food security and sustainable development can provide the use of electronic communication and electronic data dissemination to support agricultural and rural development in African countries. This will improve access to extension and other information sources available in a country and outside and will also facilitate documenting and sharing of local knowledge and experience. The ultimate

objective being the improvement of lives of the rural population and agricultural producers in African countries through the improvement of agricultural and rural development services provided by extension workers. Here again, the AISI framework identifies the following ICT opportunities to promote food security and sustainable development:

- Establishment of information systems for monitoring market performance and measuring market failures;
- Development of information systems to address food security issues such as agricultural production, government subsidies for food security, monitoring of water and land resources, disease problems, food transportation and storage;
- Efficient marketing of agricultural products through information and telecommunication networks;
- Provision of equitable access to new techniques for improving agricultural production;
- Reduced food storage losses through more efficient distribution ICT actions in support of food security and sustainable development

10.1.1 Current AISI Status

Through the AISI, many African countries now have national e-policies which are serving as their guiding principles for ICT4D in countries as discussed in some of the chapters. The AISI framework has been the most comprehensive programme to date for developing Africa's Information Society and remains an important milestone, undoubtedly in the history of the Information Society on the continent. The AISI framework, vision and mission is further given weight when compared to the WSIS Action Plan (Geneva) and Commitments (Tunis) as shown in the graph.

Overall, the AISI has become the cornerstone of the various ICT policies, however, implementation of national policies remains a challenge for many countries due to technical, human and financial constraints. Addressing some of these obstacles will be crucial in preparing countries for their transition to the digital and knowledge economy.

Fig. 25: AISI Focus Areas and WSIS Action Lines

AISI Focus Areas and WSIS Action Lines			AISI	WSIS Action Plan
Enabling regulatory environment			✓	✓
Capacity development & e-education			✓	✓
Network building & resource mobilisation			✓	✓
National ICT policies & strategies			✓	✓
Infrastructure: Connectivity, access & costs			✓	✓
Global ICT governance			✓	✓
ICT for health care			✓	✓
Business development, e-commerce & SMEs			✓	✓
Content development			✓	✓
E-government			✓	✓
Information & knowledge sharing			✓	✓

10.2 Addressing the Infrastructure Gap

Despite the introduction of AISI, there is still a great deal of catching up to do on the continent. The ability of nations benefit from the abundant opportunities through the utilization of Information and Communications Technologies (ICT) to advance the socio-economic development process is highly dependent on appropriate infrastructure without which countries will be denied opportunities for accessing new sources of wealth as a result of the digital and knowledge economy. It is amply evident that Africa's infrastructure remains a weak point in the development of the Information Society. For

instance, the emergence of new industries and ultimately new job opportunities as a result of the global knowledge economy through Business Process Outsourcing (BPOs), estimated at US\$642 billion annually, as well as the Knowledge Process Outsourcing (KPOs) means that with the current state of infrastructure many African countries cannot benefit from such global business opportunities. This also includes Call Centres and other IT enabled services (ITeS) that are also infrastructure-dependent. This is one of the key lessons learnt from the 10 years of implementing the AISI.

The prerequisite for the creation of an information-based economic structure is the existence of an efficient information infrastructure and services. In spite of efforts made to date by most African countries to create the necessary environment for ICT development, a majority of countries continue to face challenges relating to the availability, quality and affordability of ICT infrastructure. Even though the basic infrastructure to connect to the global information network exists in some countries, affordable and equitable access remains a critical issue for economic empowerment and foreign direct investment attraction. ICT diffusion is often limited to urban areas, thus disadvantaging the population in the rural areas. Adoption and diffusion of ICT's is also hampered by the lack of access to reliable sources of electricity, as grid penetration to rural areas is low. Remote areas, and in some cases urban areas, are characterized by irregular/intermittent or non-existent electricity supplies.

Yet, in the past few years, infrastructure development has been on the increase. Although Governments' financial contribution to ICT sector has generally been inadequate in most cases, a number of countries have instituted programmes addressing infrastructure deficiencies - the prerequisite for the creation of an information-based economic structure. According to an ECA survey, infrastructure activities being undertaken in several countries include:

- Building of National ICT Infrastructure backbone (laying of fibre optic cables) - expansion of the fixed network (optical fibre) as well as the transport infrastructure for data communications;
- Expansion of the mobile network to under-serviced areas;
- Power/energy supply projects;
- Improvement of the rural service access through the creation of the Universal Service Fund;
- Promotion of network expansion by private operators.

These efforts notwithstanding, urgent interventions are required to bring about equitable distribution of ICT infrastructure in each and every African country. This because the continent still remains the lowest in the world with respect to fixed line penetration and has limited capacity to deliver high speed Internet connectivity. Also, the prospects for offering high-speed broadband services over networks are further limited by fixed infrastructure and lack of bandwidth.

Despite some growth and developments on the African broadband, the market remains at very early stages in its development, and its reach is limited to a minimal target market. For a region such as Africa, broadband should not be viewed as a luxury, but as a necessity in an increasingly information-based society. Providing broadband access opens up a new door to a knowledge-based economy, which in turn will promote the region's social and economic development. Broadband can be harnessed to improve a number of key initiatives such as community access and tele centres, cyber cafes, e-Health, and e-Learning.

10.3 The NICI Process

Overall, the process requires a great deal of investment in time and resources if these policies are to benefit the countries and their people. There needs to be a great deal of flexibility on the part of the implementing partners (Governments, donors and international agencies) so as to accommodate the timeframe, consultations and vision/mission of the country. Some lessons learnt during the implementation of this project in the NICI process are briefly described below.

10.3.1 Political stability

To embark and complete the ICT policy process there needs to be political stability as well as political commitment in countries. In some cases, the process is delayed and eventually stalled due to political instability and direction, which can cripple the e-strategy activities such as a de-prioritization of the policy. Even a change in government can lead to the stalling of the process, with new ministers or key personnel in a given ministry.

10.3.2 Political will

Furthermore, political will is very much needed for advancing the policy and its objectives within a given country. This includes the commitment of the top leadership within countries as well as the key ministry and agency leading the process. Experience shows that once there is high political will, the NICI process is given tremendous boost as exemplified by Rwanda, Swaziland and Niger. Once the policy is developed, the commitment of the Government is put to the test with respect how much fund-raising and the country's resources are deployed into implementation.

10.3.3 Participatory approach

The success of the formulation process is just as important as the implementation phase. A participatory approach where various and diverse groups are consulted enriches the policy itself and further validates what the government is doing. This process also ensures "a people-centred, inclusive and development-oriented Information Society for all". It also serves a mechanism for generating and stimulating debate on Information Society issues that helps to raise greater awareness from the country's perspective. Even though some countries undertake broad national consultations, there is room for improvement. The role of the private sector has often been too limited and could be considerably improved in countries. Furthermore, the involvement of the civil society in ICT for development has been uneven and not all the countries pay significant attention to civil society participation in the process.

10.3.4 Priority sectors

The NICI process is highlighting the growing importance of using ICTs for delivery of government business and the advent of e-government in Africa, as well as introducing ICTs in sectors such as trade and commerce, as well as:

- *Human and Institutional strengthening.* The human and institutional capacity development remains a challenge for most countries as they implement their NICI plans. This includes the

lack of expertise in policy analysis (defining and implementing national policies, participating in global decision making, etc.); inadequacy in information management, policy and regulatory framework development and enforcement of regulation by institutions; fragmentation of ICT related programmes at national level due to competition among agencies and institutions; lack of negotiation skills particularly at the international levels; lack of reliable and sustainable institutional capacities resilient to the changes of government and global needs.

- *Linking indicators with NICI Process.* There is a co-relation between the NICI process and SCAN activities and this should be strengthened. It can serve as the basis for policy formulation as witnessed in Ghana and Uganda. A systematic training programme should be developed allowing various groups of researchers to participate for the development of a critical mass in this area. National Statistical Offices need to participate more in the SCAN project in each of the countries in a well-targeted and defined manner, which can allow for statistical offices to begin working on Information Society issues.

Other challenges include:

- Stronger implementation of e-strategies at sub-regional levels aimed at regional integration;
- Stronger representation at the global level as there is a lack of negotiation capacity of African delegations at the WSIS, coupled with frequent changes in composition of African delegations to sustain African interests and limited knowledge on global ICT issues – Internet Governance, IPR, security, e-commerce/WTO issues by African delegates;
- Need for linkages between global ICT policies and that of regional, sub-regional and national.

10.4 Stakeholders

ECA's work in developing e-strategies has been closely linked to a multi-stakeholder partnership strategy for building a sustainable Information Society. Whilst governments have a leading role in developing and implementing comprehensive, forward looking and sustainable national e-strategies, the private sector and civil society have an important consultative role to play in this process. Consequently, a number of initiatives were launched aimed at key stakeholders in a number of countries.

As part of developing a national ICT policy in Swaziland, stakeholders, including government officials, media, academia, women, civil society and youth recently began a national debate on building of an inclusive Information Society in the Kingdom. The NICI Stakeholders programme involves a series of workshops to promote awareness on ICTs as a tool for poverty reduction, to accelerate the MDGs, spelling out the role of each stakeholder at various stages of the policy process from formulation to implementation. During one of the workshops, the acting Minister for Tourism, Environment and Communication (who is also the Minister of Finance and Economic Planning), Mr. Absalom Muatu Dlamini, said *"Swaziland, like the rest of the world, faced the challenge of harnessing the potential of information and communication technology (ICT) to promote the development goals of the National Development Strategy (NDS), Smart Programme on Economic Empowerment Development (SPEED), and the Millennium Development Goals (MDGs).* He also linked the country's vision for economic prosperity to ICTs. As a result of the workshop stakeholders' networks were established, including Youth, Media, Private sector, Women and Librarians who will now form part of the formulation, implementation and monitoring of Swaziland's NICI policy and plan.

Similarly MPs from Ethiopia, Tanzania, Gambia, Kenya, Uganda and Niger have undertaken ICT awareness raising training programmes. In Niger, the workshop entitled 'Parliamentarians' role in building an Inclusive Information Society in Niger', was attended by over 60 MPs, which stimulated lively discussions especially on the justification for inadequate basic ICT infrastructure in the country. The main outcome was the creation of an ICT Committee within the Parliament to lead the Parliament's involvement in the formulation of the national ICT Policy. The Committee is working towards ensuring the allocation of more budget and adequate law to support the AISI implementation at national and sub-regional levels.

In addition, a number of national, sub-regional stakeholder networks (including media, youth, women, academia and private sector) were launched to provide a mechanism for broadening and sustaining the modalities for their participation beyond consultation, to decision-making, implementation, monitoring and evaluation processes. These networks serve as a vehicle for peer reviewing, sharing of ideas, communication, and opportunities for continuous personal and professional development in the process of building the African Information Society.

The involvement of stakeholders' networks in the implementation of the AISI has received extremely positive responses as commented by the member States. The national networks have demonstrated their effectiveness in participating in the ICT policy and strategies processes, including the formulation, implementation, review, and evaluation.

For example, Nigerian ICT-for-Development Youth Network (NYIN), the country-level arm of the ECA-led African Youth ICT4D Network (AYIN), has a vision of raising a networked generation of young Nigerians empowering themselves and contributing to the country's active participation in the Information Society. Through this platform, NYIN supports, inspires, empowers, educates, assists and informs youth-led initiatives around the country and helps them reach their full potentials and achieve their goals and objectives. NYIN also works with youth efforts that are directed towards achieving the Millennium Development Goals (MDGs).

The most successful actors are journalists who are very active in term of reporting on ICTs as a development tool and increasing awareness and understanding on ICT4D issues among decision-makers in the continent. This was achieved as a result of the various activities undertaken to build the capacities of journalists, including the AISI Media Awards, on-line discussions, and support of their participation to different regional and international forums. A concrete example of this role is a Togolese AISI Media Award winner who has successfully explained to and convinced a decision-maker of his country about the importance of ICTs and ICT Policy and strategies for development, which lead to an official request to be sent to ECA.

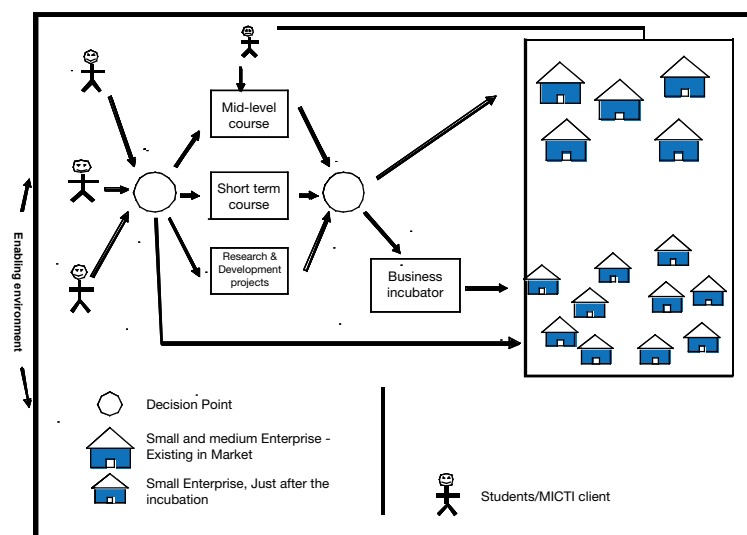
ECA is also supporting Rwanda's ICT4D Journalists Network, to implement their plan of action focusing mainly on launching a media campaign on building an inclusive Information Society in Rwanda. The campaign, which includes writing ICT articles, conducting radio and TV interviews and documentaries, aims at raising awareness of the community on Information Society issues in general, as well as the country's first and second National Information and Communication Infrastructure (NICI) Policy and Strategies for accelerating MDGs and Poverty Reduction.

10.5 The African private sector

The AISI spells out a role for the private sector, stating...*"in developed countries, the private sector has assumed a vital role in establishing the information society. It is crucial in Africa that a critical mass of local business ventures arises, capable of supporting and using the information infrastructure"*. In the next decade of implementing AISI, indeed, greater efforts must be put into strengthening the Information Society Private Sector (ISPS) if the gains made in the last decade are to be sustained. ECA's interaction with the African private sector under the AISI framework thus far has revealed the need for the following:

- The need to organize within countries and at the sub-regional level round tables for the private sector, government and civil society to develop actions plans to promote a better participation of the private sector in the process of building the Information Society.
- Develop forward-looking policies to promote the local private sector in strengthening their involvement in various national ICT investment and procurement programmes.
- Create sound financial mechanisms and incentives to support SME and their use of ICTs for business and entrepreneurship development.
- Development incubations centers in countries as part of the NICI implementation process to nurture the local private sector.
- Develop and implement a continuous capacity building, mentoring activities for the development of Small and Medium Enterprises (SME); SME play a vital role in economic development, and are key to promoting job growth and innovation in Africa.

Fig. 26: Business and Technology Incubation Model: Example from Mozambique ICT Incubation Centre (MICTI)



The concept of business and technology incubation is gaining currency in some countries and is seen as a way for nurturing local private ICT entrepreneurs to support Information Society activities. An example is the Mozambique ICT Incubation Centre (MICTI) concept from entrepreneurship aptitude development to business incubation for the Global market.

The goals of the Mozambique Information and Communication Technology Micro and Small Enterprises Incubator (MICTI Incubator) are twofold: to identify sustainable opportunities for technology-based businesses in priority development areas; and to test the assumption that technology-based businesses can mentor the development of micro enterprises in these areas. By allowing potential entrepreneurs to gain skills and access resources otherwise unavailable in Mozambique, this program is creating employment and generating wealth in a sector of the economy critical to the country's future. *"Most students are poor and cannot afford loans to start a new business. What we have seen happen is that through experiencing what it is like to work in a supportive incubator, these young people are discovering that with a good idea, a few shared services, an office space, access to a laptop and overhead projector and telephones and the Internet, they can create a viable business. They are discovering that they are smart and can generate their own employment."* explained Americo Muchanga, Director, Centre for Informatics, Eduardo Mondlane University.

The first incubated businesses include a law firm offering online services such as arbitration, legal resources and consultation; a company developing the first Mozambique Internet search engine as well as building Web sites and managing events; and a sports webcast site focusing on soccer.

10.6 Emerging areas

10.6.1 Internet governance

Since the launch of the AISI framework, a number of issues have also taken center stage. One of these issues is the Internet Governance debate emanating out of the WSIS process and the implications for African countries.

The controversy on Internet Governance increased during the first WSIS when debates pointed to the need to enhance the role of all key stakeholders in making the Internet a development tool and a global public good of multi-stakeholder nature. In this context, a number of developing countries questioned the role of ICANN, a private US based company in the management of Internet related issues. The debate pitted developing countries against developing country governments throughout the WSIS process, and at the Tunis phase of the Summit, the only point of agreement by all the stakeholders was that a consensus on Internet Governance is important, as it is a critical global development issue.

AISI considers the Internet as a major tool for development. This was reiterated by the Accra Commitments, adopted by the African Regional Preparatory Conference on the WSIS held in Accra in February 2005, where Governments and African stakeholders exchanged views on the developmental policy, technical, ethical, societal, security and legal dimensions etc. related to Internet Governance. In order to make Internet Governance issues more relevant to the African context, the Accra Commitments recommended that "Internet Governance aspects should be mainstreamed in the establishment of national and regional e-strategic plans". As the NICI development process provides an avenue for African countries to address a number of the emerging IG public policy issues within their NICI Policies, this would also offer an opportunity to discuss international IG related issues and enable preparation of positions at the national and regional levels. Mainstreaming IG in the NICI process accompanied by the necessary capacity building activities should provide stakeholders with the skills and knowledge

required to participate meaningfully in the global debate on Internet Governance and ICT for Development, in particular the use and exploitation of the Internet to achieve the MDGs.

The development and deployment of suitable applications were reiterated by the Tunis Agenda for the Information Society, which acknowledges the need to focus on “ICT applications and content aimed at the integration of ICTs into the implementation of poverty eradication strategies and in sector programmes, particularly in health, education, agriculture and the environment”. This comforts the AISI vision, which underlines the need to focus on ICT for Development issues with a view of offering digital opportunities to the majority of the population of the continent through suitable infrastructure, appropriate enabling environment and relevant applications on e-government, e-business, e-health, e-education, e-agriculture, etc.

10.6.2 Access: Gender and ICTs

ECA, in the framework of the e-PolNet in partnership with the CePRC organised a series of workshops on ICT access in Africa. These workshops were held in Douala, Cameroon and Dakar, Senegal for Francophone participants. The recent one was organised in Kigali, Rwanda from 24-25 October 2007 under the theme “National ICT Policies: Regulation and Public and Community-based Access” for Eastern, Western and Southern English-speaking African Countries. Participants included representatives of local authorities, NICI focal points, regulators, cyber café managers, ISPs, civil society, private sector, women and youth entrepreneurs, the key players in the formulation and implementation of access related ICT policies and strategies.

The objectives of the workshops were to strengthen the capacities of decision-makers from African countries in designing and formulating national ICT policies that put emphasis on community-based and public access with the aim of establishing a dialogue among regulators, jurists, legislators, decision-makers, managers of public information centers/ telecenters, Internet service providers and representatives of REC's.

Issues related to public access in ICT strategies and regulations, modalities for granting licenses, business models for community based telecenters and the financial and technological sustainability of such centers were discussed. The workshops provided participants with best practices in identifying adequate strategies to strengthen the development of enabling legal and political environments which were conducive to the democratization of access to ICTs, with a special focus on rural and marginalized areas and communities.

As a result, participants were able to identify the most suitable ways to consolidate the emergence of positive policy and legal frameworks that would guarantee the democratization of ICT access, particularly in rural areas. The workshops provided an opportunity to discuss the various issues, create consensus and identify priorities for action that the countries or sub-regions could then implement in order to accelerate the development of ICT in rural areas thereby securing for these populations, better access to ICT and their economic and social benefits (i.e. “operationalise ICT4D – ICT for Development”).

With regard to access and gender, patterns of ICT and Internet use and access are different among women and men. Women tend to have lower levels of access than men in most countries. There is

also limited content on ICTs that provides the health, agricultural, trade and market information that women need. Gendered roles and socio-cultural customs can limit women's and girls' access to and use of ICTs. Multiple roles and responsibilities, including the main responsibility for domestic chores and child rearing, mean women have less available time to learn and use ICTs. Information centres or cybercafes are often located in places that women may not be comfortable frequenting or that are culturally inappropriate (or even dangerous) for women to visit. Hours of opening may also be an issue, as public access centres may not be open during convenient hours for women. Other socio-cultural constraints include norms governing the interaction of men and women in public places. Women using telecentres in Africa may be uncomfortable receiving one-on-one technical assistance from a man. The amount of pornography on the Internet is also a major deterrent to female users, and the tendency of young men in public access points to view pornography deters many young women from frequenting such places. Lack of privacy in general in using computers in public access centres is also a deterrent.

The exercise of citizenship and direct public participation in government activities are both key to women's empowerment and gender equality. ICTs have the potential to promote the active and meaningful participation of women in all levels of decision-making and to ensure greater transparency and accountability in government.

To ensure that gender mainstreaming is taken into consideration in the development of policies, the ECA, in its support for countries in the formulation of NICI plans encouraged Chad and Togo, two countries that had initiated the process of formulating their NICI plans to integrate gender mainstreaming in their respective NICI plans. The proposal to mainstream gender in the Togo and Chad NICI processes constituted an opportunity to improve the situation as far gender mainstreaming was concerned as the result could be showcased and be a lesson for other processes.

The most widespread means of communication is the radio and rural broadcasting has succeeded in bringing news to rural areas. The fixed telephone is still a luxury although the phenomenon of telecentres has been well developed in a lot of areas particularly in the rural areas. In Togo, women cashiers manage most of the telecentres in the cities and rural areas.

Women are increasingly using mobile phones as a convenient means of communication despite the relatively high cost. Businesswomen and women entrepreneurs engage in business at the domestic, regional or international levels using the mobile phone. The extensive use of mobile phones, even in the absence of statistical data, should certainly impact on the development of their businesses and their turnover.

This process was currently ongoing in both countries in which women account for 52% of the population. The ICT penetration rate is still low for these countries and worse for women. Several reasons are attributed to this low rate and these are linked to challenges at different levels.

10.6.3 E-security/cyber-security

Cyber-security is essential to ensuring a favourable climate for online commercial transactions and a wide variety of Internet applications such as e-education, e-health, e-trade, e-customs, e-culture and e-agriculture. With adequate policy frameworks in place, African countries will be able to participate in the global e-economy and prosper socially and economically.

Security on the Internet is crucial not only for the stability of the network and its further development, but also for building the confidence among users and for building Internet usage in countries and for the utilization of Internet applications, especially e-commerce.

In line with this, ECA has organized regional workshops to increase capacity among policy-makers and enrich content for the development of a cyber-security toolkit, which is aimed at African policy-makers.

The second Regional e-Government Stakeholders meeting held in Nairobi in June 2005, besides considering the draft Regional e-Government Framework for East African Community (EAC), also identified Cyber Laws and e-Justice as key cross cutting issues that need to be in place for a successful implementation of e-Government applications in East Africa. The meeting further agreed that Information Security was a critical cross cutting issues that needed to be addressed as a matter of urgency as it would form part of the legal framework for the enforcement of the cyber laws. The meeting recommended a regional follow up workshop on Cyber Laws and e-Justice be held in Kampala in the first quarter of 2006.

Subsequently, a Third Regional Stakeholders Consultative meeting on Cyber Security and e-Justice was held on 25th–26th April 2006 in Kampala. A Technical Workshop on Information Security for experts was also held back to back with the Cyber Laws workshop on 27th –28th April 2006. The meeting agreed to a roadmap towards a harmonised legal framework for cyber laws and information security in East Africa.

10.7 Conclusions

The AISI vision has also served to support some unique partnerships including the launch of the African Health Infoway (AHI), led by WHO, to create a district-based Public Health Information network and a geospatial system for health in Africa. The AHI will entail the collection of sub-national health data and statistics for analysis, dissemination and use to support decision-making in health and strengthen capacity of African countries to use information in decision-making. This will include data for epidemiological research, indicators for monitoring and evaluation, financial and cost reporting for clinic management, and drug and equipment supply stock reporting for supply management. The AHI, as currently conceptualized has three main development objectives:

- To strengthen health systems and improve health in countries by bringing ICT to bear positively on health challenges and facilitating the coordination of existing work undertaken by WHO and other development partners at country level;
- To support WHO's strategic objective in knowledge management; and
- To support the newly developed WHO Strategic Objectives within the Medium-term Strategic Plan (MTSP), which covers the time frame 2008-2013. The AHI has a number of strategic components, namely infostructure and connectivity, district health information systems, and knowledge translation into policy and action.

Furthermore, ITU and ECA have jointly commissioned studies on ICT and employment in Africa, examining how the information revolution is impacting on job creation as determined by the AISI vision.

The studies assessed the efforts made by African countries in ICT deployment for job creation and poverty alleviation taking advantages of the huge potentials of ICT in developing an information economy. These studies covered various issues involved in deploying ICT to create employment opportunities and for poverty alleviation with specific examination of sampled member States' (Egypt, Ethiopia, Kenya, Mozambique and Nigeria) activities as it relates to policy development, strategic frame work, reforms, awareness and necessary collaborations in achieving the goals. Success stories and challenges of countries involved in the deployment of ICT for economic development were also examined.

The main findings of the studies focused on liberalization of the ICT sector and the importance of appropriate infrastructure, economic reforms, Universal Access provision, large pool of literate citizens and the importance of human capacity, direct and indirect employments, outsourcing opportunities, and effect of the Diaspora, gender issues, cost of bandwidth for Internet access, entrepreneurs, and e-Agriculture. In view of the foregoing findings, the studies recommended that African countries be called upon to:

- Undertake education reform with emphasis on skills required by the Knowledge Economy;
- Promote an enabling environment through appropriate policies and incentives;
- Promote Community Multipurpose Telecenters (CMCs), taking advantage of the network of post offices that are already in place;
- Promote e-Agriculture policy, strategy and plans;
- Encourage life-long learning, distance learning, e-learning, and re-skilling;
- Promote technological innovation through business incubation and Technology Parks;
- Promote venture/risk capitals to support young entrepreneurs;
- Define the role of information specialists on African governance discourse;
- Involve African academia in the "ICTs and employment for Poverty Alleviation" research activities;
- Put emphasis on the role of the citizens in Diaspora especially in developing the outsourcing market in particular and the ICT market in general; and
- Put in place appropriate policies and strategies to encourage and facilitate the adoption of relevant ICTs by SMEs to boost their productivity and competitiveness.

In the coming years, the AISI vision in the areas of agriculture, food security employment, gender, health, trade/commerce, and human-made crises and natural disasters, will be increasingly realized through the effective deployment of ICTs in various sectors.

With the advent of the Information and Knowledge Society, African countries cannot afford to neglect the area of science and technology which has to assume a central role and generate innovation. Furthermore, ECA recognizes the importance of Science and Technology and the Information Society and a special focus will be placed on scientific research and its linkages to the development of new technologies and to the production of data and information. The application of scientific knowledge continues to furnish powerful means for solving many of the challenges facing humanity, from food security to diseases such as AIDS, from pollution to the proliferation of weapons. Already, AISI provides the basis for enhanced inter-linkages between Science, Technology and the Information Society with reference to food security, health, R&D as well as disaster prevention. Within the scope of the AISI Outreach Programme, scientific diplomacy will also form one major area for cooperation between ECA and African countries.

Fig 27: The AISI Roadmap



