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# Bridging the Gap: The Role of ICTs & Spatial Technologies in Empowering Communities



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## Background

- **Developments** in Information and Communication Technologies (ICTs) provide opportunities for improved communication, for exchanging experiences and for sharing knowledge
- **Technical:** enhancing technical infrastructure & skills for improved information management and sharing
- **Nurturing Communities:** introducing tools and improving skills to facilitate exchange of knowledge among mutually-supportive projects & raising awareness
- **Content Development:** developing relevant "content", or knowledge that is codified, using new communication tools, including websites



## Knowledge and Technology Issues in Africa

- **Relevance of ICTs and other technologies:** Assumption that they make a difference as enablers in development/poverty reduction
- **Low technology capacity;** Need for tapping technical progress to reduce costs and lower access barriers which is key for the poor
- **Poor infrastructural base:** Need for flexible platforms of complementary technologies, such as radio & internet (may be particularly efficient)
- **Low investment in research and development:** Local knowledge & local innovation are key resources for success
- **Inadequate regulatory regimes:** Need for policies and strategies for development



## Status of ICTs in Africa

- 1 in 4 have a radio (205 million)
- 1 in 13 have a T.V. set (62 million)
- 1 in 22 have a mobile phone (33.5 million)
- 1 in 34 have a fixed line (21.5 million)
- 1 in 86 have a PC (8.7 million)
- 1 in 94 use the Internet (7.9 million)
- 1 in 400 have Pay-TV (2.0 million)

**Fundamental implications for use of geospatial technology**

2002 figures

## Status – Information and Communication Technology (ICT)

ICT Infrastructure	1999	2002
Fixed Telephone Lines	18,617,100	21,597,000
Mobile Telephone Lines	7,655,100	33,563,500
Teledensity	2.43	2.62
Internet Users	2,674,900	7,942,800
Number of TV Receivers	52,883,000	62,000,000

2002 figures.

## Implications for Communities

- **Advances in ICTs lead to:**
  - Exponential increases in quality and reduction in cost enabled development of e/m-Services
  - Improved dissemination of knowledge and information
  - Strengthening of partnerships
  - Better coordination of national policies and regional/global initiatives
- **Threat**
  - Digital Divide
  - Technology push vs. user needs pull
- **Opportunity**
  - Develop Community Information Network
  - Increase community participation in decision making through mapping distribution of physical and social conditions and indicators of suitability for specific activities
  - Build consensus that leads to action



## ECA's Response: Information and Science & Technology for Development

### Two main areas of focus

**1. Improved capacity of African countries to formulate, implement and evaluate inclusive and gender-sensitive national and sectoral Information, Communication, Science, Technology and Innovation policies and strategies for development**

**2. Improved availability and use of STI, information and knowledge for development at the local, national, sub-regional and regional levels**

### 4 Pillars of the KE

*(adapted from the World Bank KE Model)*

economic and institutional regime

educated and skilled population

dynamic information infrastructure

efficient innovation system of firms



## Experiences from ECA's work on Promoting Knowledge and Spatial Information Technologies in Africa



## Policies and e-Strategies Development

- Development of National Information and Communication Infrastructure (NICI), based on ECA's African Information Society Initiative (AISI) to leverage the benefits of information technology for a people-centered, free market based and export-oriented socio-economic development.
  
- Development of NSDI, a geo-enabler for the NICI
  - Policy process require geospatial S&T support for effectiveness and efficiency
  - Geoinformation component now part of any National Infostructure

## Policies and e-Strategies Development Ghana & Rwanda

### Impacts of geo-enabled National Information and Communication Infrastructure (NICI) Policies:

- Ghana:
  - 2<sup>nd</sup> ICT Policy is focused on four thematic areas including geoinformation/geospatial tech in government business
  - Major breakthrough in advocacy
  - Geo community in Ghana involved in process
  
- Rwanda
  - 2<sup>nd</sup> ICT Policy has led to a number of initiatives including establishment of NSDI centre
  - Greater focus on GIS/geospatial technology in natural resource management, more being developed etc.

## Empowering Communities –Capacity Building

- Increasing demands for information, knowledge, skills, and participation
- Tele-innovation Centres launched by ECA in Rwanda and Ghana
  - Looking at mobile and handheld technologies for rural development
  - Geo-enabled technologies also emerging
- Working on use of geospatial technology for street naming exercise in Accra/Ghana
- ECA Information Technology Centre for Africa (ITCA) to build capacity for planned communication policies, strategies and activities

## Building Knowledge Sharing Network

- **A project aimed at empowering poor & disadvantaged communities through the transformation of existing ICT access points in selected countries into knowledge hubs of global knowledge networks**
- **The project included several activities such as:**
  - Setting up global framework & detailed implementation plans;
  - Implementing global/regional networks;
  - Launching networks among stakeholders;
  - Transforming access points into knowledge hubs;
  - Activating knowledge hubs & engaging beneficiaries.
  - Empowering officials and community representatives

## The Rural Knowledge Hubs

- **Generating knowledge** – almost all centres were offering multimedia services and community radio prog including through the Community Baseline Research;
- **Transfer of knowledge** to sites of application e.g. FADECO demonstrating solar cooking, fuel saving stoves, wind energy, bio- fuels, etc to communities;
- **Transmitting knowledge** through education and training e.g. FADECO on improved bee keeping, banana wine making, etc.



## Promoting Spatially-Enabled Communities Services

Spatial enablement of Rural Knowledge Hubs & Tele-innovation Centres will help in making information a development asset as well as bridging the gap at local level particularly in :

- Ubiquitous availability of relevant spatial data/information as common goods for the communities
- Become involved in contributing to collection of fundamental data, thereby become part of the Mapping Africa for Africa (MAFA) initiative
- Improving local governance, as communities have access to knowledge and can get involved in decisions affecting them.
- Facilitating planning and policy making processes that lead to timely, efficient, transparent and accountable services and more economic activities and benefits

## Challenges for use of spatial technologies by local communities

- Local appropriation is important: Bridge the digital divide, including hardware & software development, research, e-Services
- Formulate policies and develop information infrastructures at affordable costs
- Ensure financial sustainability: budget allocations should factor ICTs and geospatial technologies in rural development
- Enabling environment, including people participation and freedom of expression, competition, political backing and legal/institutional/regulatory frameworks
- Promote localisation through more applications with local content and use of local languages.

## Promoting Geospatial Technology use in Africa



### Technology in Government in Africa (TIGA) Awards

TIGA<sup>09</sup>  
Technology  
in Government  
in Africa AWARDS

#### New Category → GEOSPATIAL GOVERNMENT (G-Government)

- To promote geoinformation and effectiveness of geospatial technology in government services and functions
- Sensitize decision-/policy-makers on the importance of geospatial technology
- Partner with Industry on the promotion of awards, including holding sensitization workshops for 5 regions of Africa

**Expected outcomes: Give boost to awareness raising efforts**





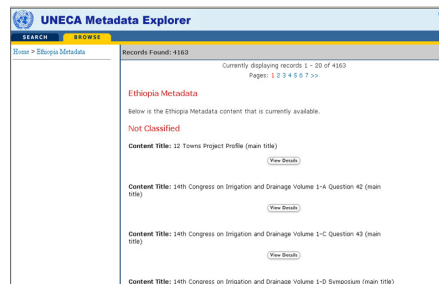
## Current Geo Activities

- **Development of Interoperability & Standards through:**
  - **Common Geodetic Reference (AFREF)**
  - **Harmonized Administrative Boundary- Second Administrative Level Boundary (SALB) <http://www.salb.org>**
  
- **Creation of Regional Databases:**
  - **TheTransport Infrastructure Database (TIDB)**
  - **Programme of Infrastructure Development in Africa (PIDA)**
  - **The African Fiber optic connectivity database**
  
- **The Trans African Highways Project**
  
- **e-Services Delivery (Clearinghouse Services + Online Mapping)**



## Current Geo Activities

- **Spatial Data Infrastructure (SDI)**
- **Metadata Explorer**
- **Online Visualization tools:**
  - **African Infrastructure atlas**  
<http://geoinfo.uneca.org/africaninfrastructure>
  - **MDG Mapper**  
<http://geoinfo.uneca.org/mdg>
- **The Academy of ICT Essentials for Government Leaders Course Series**  
<http://www.uneca.org/elearnafrica>



## Way Forward – UN Global Geospatial Information Management Initiative

ECA organizing and hosting the regional preparatory meeting for Africa including:

- Working with some countries in the background document on capacity-building
- Committee on Development Information, Science and Technology CODIST meeting held from 2-5 May passed a resolution on the UN GGIM process and its importance for Africa
- Building multi-stakeholder-partnerships both private & public
- Promoting advocacy at national level among policy-makers
- Supporting geo-enabled development
- Signs of greater awareness
- More geo activities in countries – mapping exercise ongoing

## Way Forward - Overall

Bridging the gap encompasses several actions including:

- Integration matters: Instead of ICT-centered projects, rather built-in information technology components in all levels of on-going strategies and programmes
- Building multi-stakeholder-partnerships: Private & public involvement subject to context, policies and approaches taken
- Promoting national level advocacy: The deployment of information technology requires public intervention (Members of Parliament)
- Strengthening of the capacity for managing traditional knowledge
  - Local communities and resource users should benefit from mechanisms that provide them with the know-how to apply traditional and indigenous knowledge and approaches (Ref. Chapter 26 of Agenda 21)
- Spatial enablement of services for communities needs should incorporate location into problem solving

## Way Forward – This event

ECA looking to accelerate its work and ensure full integration of geospatial technology in the development process, therefore work with:

- FIG Africa Group in working in African member states
- Through the UN system – UNGIWG, UNGEGN, GGIM, CODIST
- AU/ECA/ADB Joint secretariat based in ECA premises to promote integrated approaches in work programme of the 3 institutions e.g on AFREF
- international partners to build a strong user base network – planned workshop for executives of oil/gas, electricity, roads and highways, etc

## Thank You !

<http://www.uneca.org/istd/>

*Can Spatial Information Technology help local communities to manage their environment more effectively and efficiently, while at the same time respect and enhance traditional cultures? We are tempted to conclude with Krantzberg's First Law : "Technology is neither good nor bad, nor is it neutral" (Castells 1996), which points to the importance of the social, political and economic context of technologies. It seems that, in many ways, traditional environmental knowledge is much closer to the technologies' structural features and functionalities than some of our Western methodologies*

*Dr. Gernot Brodnig - Weatherhead Center for International Affairs - Harvard University*