Quick Scan - part 2

Needs Assessment and potential solutions for improved ICT & Information supply in the Agriculture sector

Netherlands Water Partnership

SNV

Netherlands Space Office

Overview of presentation

- ICT services in Ghana
- Spatial information in Ghana
- Information challenges and needs in the Agriculture sector
- … and in other sectors linked to agriculture
- Potential stakeholders in G4AW
- Examples of agro-spatial information services

ICT Services - status

- Annual growth -17%(2011) and 12.1%(2012)
- Govt support – eg. policies to open ICT market to private sector, expansion of fibre optic base in the country.
- Increase in mobile phone subscriber base –from approx. 383,000 in 2002 to 27.5 million in 2013(NCA)
- 6 cellular phone operators
- over 280 authorized radio stations
- 130 authorized service providers
- Internet penetration rate in the country reached 40.7% - 10mill data subscribers by August 2013 (NCA).

Spatial Information - status

- Since 1990s - efforts made by the GoG, World Bank and other development partners to establish a legally mandated Spatial Data Infrastructure (SDI)
- National Framework for Geospatial Information Management (NAFGIM) developed in 2000(part of a National Environmental Action Plan)
- NAFGIM no longer functional
- Efforts underway to develop the National SDI (NSDI) vision, mission statements and objectives for Ghana

Spatial Information (cont'd)

- Most spatial information obtained through local agents from foreign principals
- No ground receiving station in Ghana

BUT significant ongoing efforts to change this:

a. West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL)
b. Ghana Space and Technology Centre (part of the Atomic Energy Commission)

Challenges of Information supply in Agriculture - National Level

- **No National legal framework** to guide the collection, storage, analysis and regulation of quality of (spatial) information
- **No coordinating body** to provide a central point of access to metadata about available data sets
- **No centralised Cadastre** register (including ownership, tenure, location, dimension, use, value).
- **Result :** Information on national land, water and crop systems are incoherent and conflicting sometimes
- Most spatial information is **outdated** – eg no new maps since re-demarcation of districts in 2012
- **Limited capacity** in public institutions to process digital data
- **Limited budgetary provision** for procurement of timely, accurate (high resolution) and relevant spatial information.

Information Challenges – Decentralised level

- Limited use of spatial information in **development planning** processes due to lack of appreciation (awareness) of the added value of spatial information for planning and monitoring.
- Inadequate **human resource capacity** in decentralised units of government for effective use of information
- **Insufficient budgetary** funds for acquisition of information (often considered expensive from private sources)
- Spatial information sometimes is used in mostly perennial crop e.g. cocoa and other cash crops (plantations):
  - Procured on individual basis by investors
  - Thus no database developed in public institutions.

Information Challenges - Local level

- **Limited information sharing** among value chain actors
  - Most information is generated by NGOs supporting projects and kept in their own databases.
  - Efforts of the online platforms of IFDC/AGRA mFARMS and USAID ADVANCE projects are new initiatives in this regard.

- High illiteracy level **requires appropriate and innovative packaging** of information for food producers (farmers) and micro level processors, traders, transporters in the value chains.
- Significant lack of awareness of spatial information and use in agricultural practices.
- Low coverage of **public extension services** –limits direct technical information access by many small scale farmers.
  - The introduction of e-extension services, accessed by smart-phones is a new initiative by MOFA. Still in pilot phase

OTHER SECTORS IMPORTANT TO AGRICULTURE

- **Telecommunications** – ICT applications for collection of accurate data, storage, analysis and dissemination via appropriate media to users.

- **Environment/Meteorology & Hydrology** – Early disaster warning systems
  - climate change monitoring and forecasting,
  - impact assessment of climate change,
  - environmental risk profiling for disaster management.
  - More reliable weather forecast information for planning at all levels (national, regional and district).

- **Education** - Capacity building (expertise) at secondary and tertiary levels for use of modern technology in data collection, analysis and information development for dissemination to users in agriculture.
  - Also within public institutions responsible for the provision of agricultural information.
  - General awareness creation and sensitization on use of modern technology for agriculture information gathering and sharing to improve adoption of new technologies.

Other sectors are important to agriculture (cont'd)

- **Land and Natural resources** – Precision data on land use and cover, water bodies, soils crop suitability
  - for potential investors and
  - development planning at national and district/regional levels.
- **Finance** –Accurate & reliable data on land ownership, crop acreages, weather forecasts and associated perils
  - To develop customized insurance products for agriculture value chain actors
  - To support credit service delivery.
- **Roads and Highways** – Mapping feeder road network to enable prioritizing of market access routes.

Stakeholders in G4AW

Government – Ministries and Agencies

- Ministry of Food and Agriculture(MOFA)
- Ministry of Environment, Science, Technology &Innovation (MESTI)
- Environmental Protection Agency (EPA)
- Ghana Meteorological Services Agency
- Lands Commission
- Forestry Commission
- Water Resources Commission
- Ghana Export Promotion Authority

G4AW Stakeholders (Cont'd)

Private Service Providers

CERSGIS

esoko

mfarms Agribusiness Solutions

imagead

ignitia

Ghana Agriculture Insurance Pool(GAIP)

Companies

Cargill

Coca-Cola

Unilever

OLAM

Mondelēz International

GHANA COCOBOD

G4AW Stakeholders-INGOs/Projects

- **ACDI VOCA** –partnership with CERSGIS – Online GIS platform for agriculture (www.gis4agric.net)
- **World Bank, FAO,UNDP, AGRA,IFPRI**
- **IFDC /AGRA**– mFARMS platform - a web- and cell phone-based platform (www.mfarms.org)
- **Alliance for a Green revolution in Africa (AGRA)** –provide grants to enhance information delivery to farmers –eg mFARMS

G4AW Stakeholders - Knowledge Institutes

a. Agriculture and related faculties of **Universities** of Ghana, Legon and the Kwame Nkrumah University of Science and Technology and University of Development Studies others) – training & research
b. Soil Research Institute
c. Water Research Institute
d. IFPRI
e. IWMI International Water Management Institute
f. West African Science Service Centre on Climate Change and Adapted Land use (WASCAL) – Climate service (collection and analysis of data; policy advisory), Research and Capacity Development
g. Ghana Space and Technology Centre of the Atomic Energy Commission

G4AW Stakeholders-Financial Service Providers

- **Limited financing** from financial institutions for agriculture information except indirectly through project finance
- Some **exceptions**: private companies have received financial support to develop systems to provide information to agriculture- eg ESOKO (funded by Acumen), IMAGEAD (mFARMS financed by AGRA)

G4AW Stakeholders - Ongoing relevant projects in Ghana

a. USAID ADVANCE II Project/CERSGIS partnership to set up information platform
b. WASCAL Competency Centre – serving West African countries with geospatial information and research outputs for policy advice
c. AGRA/NASA (United States Space Agency) partnership for the provision of satellite data information as part of AGRA's climate change support program – to be launched in Ghana in 2014
d. IFPRI partnership with MOFA – Improved data collection

AGRI-SPATIAL INFORMATION SERVICES (examples)

- Record for monitoring of crop rotation (type of crops following up each other over the seasons) to maintain nutrients
- Monitoring of land use
- Identification of fallow land in between cultivated areas to prevent exhaustion of the land
- Info for monitoring of season duration and follow up – with climate, no more start and end of seasons
- Prediction and early warning mechanisms to reduce production losses
- Risk management using remote sensing assessments (and trends) to support insurance
- Monitoring of Livestock/pastoralism movements/trails

Agro-spatial information for: Farm Insurance and Risk Prevention

Currently Agric-related insurance only provided by Ghana Agricultural Insurance Pool (GAIP)

Products

- **Weather-indexed** Insurance – only covers perils related to drought
- provides risk cover on farms within 12miles/20km of weather stations.
- **Area yield index insurance** – Still at pilot phase
- **Indemnity-based insurance** - targeted at the commercial farmer (farm size 20-50acres) or clusters of smallholder farmers; Multi-peril insurance

Thank you for your attention