Quick scan

Geodata for Agriculture and Water in Rwanda

21/05/2014

By Antoine Twagirumukiza

Table of content

Background

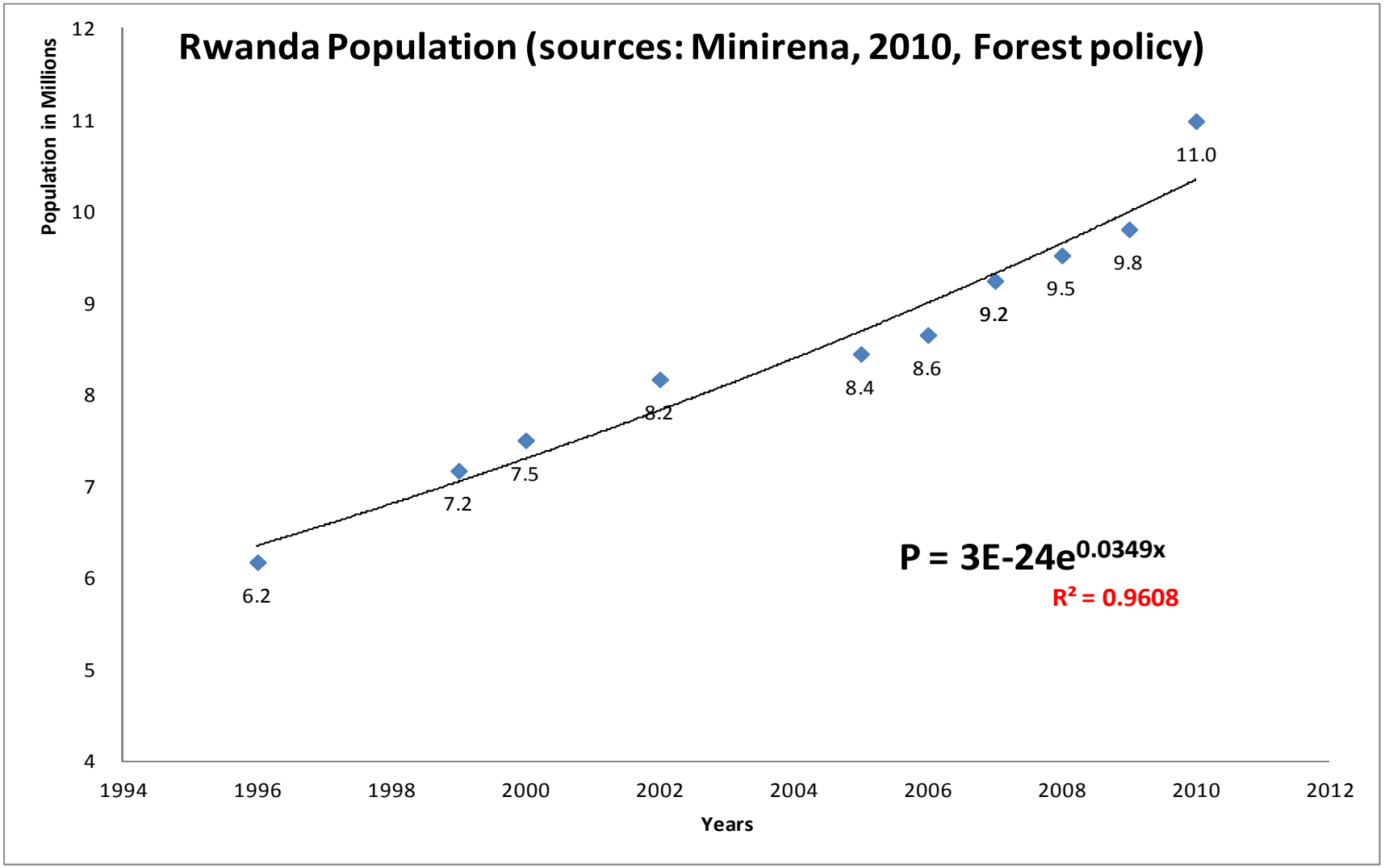
- Rwanda is located in the Great Lakes Region,
- Country area is 26,338 km2,
- Its topography rises from East at 1,250 m to the North/West at 3,000 m averaged altitudes,
- Temperature and precipitation vary between 16°C/1600 mm in the high altitude, 19°C/1300 mm in the central plateau and 22°C/1000 mm in the lowlands of the East and West Rwanda,
- That nature of topography influences the micro-climate which gives advantage for agriculture production (coffee and tea),
- Agriculture sector occupies the first place in the national economy employing more than 87% of the working population and producing around 46% of GDP,
- However, climate change is one of main challenges for the agricultural development in Rwanda.

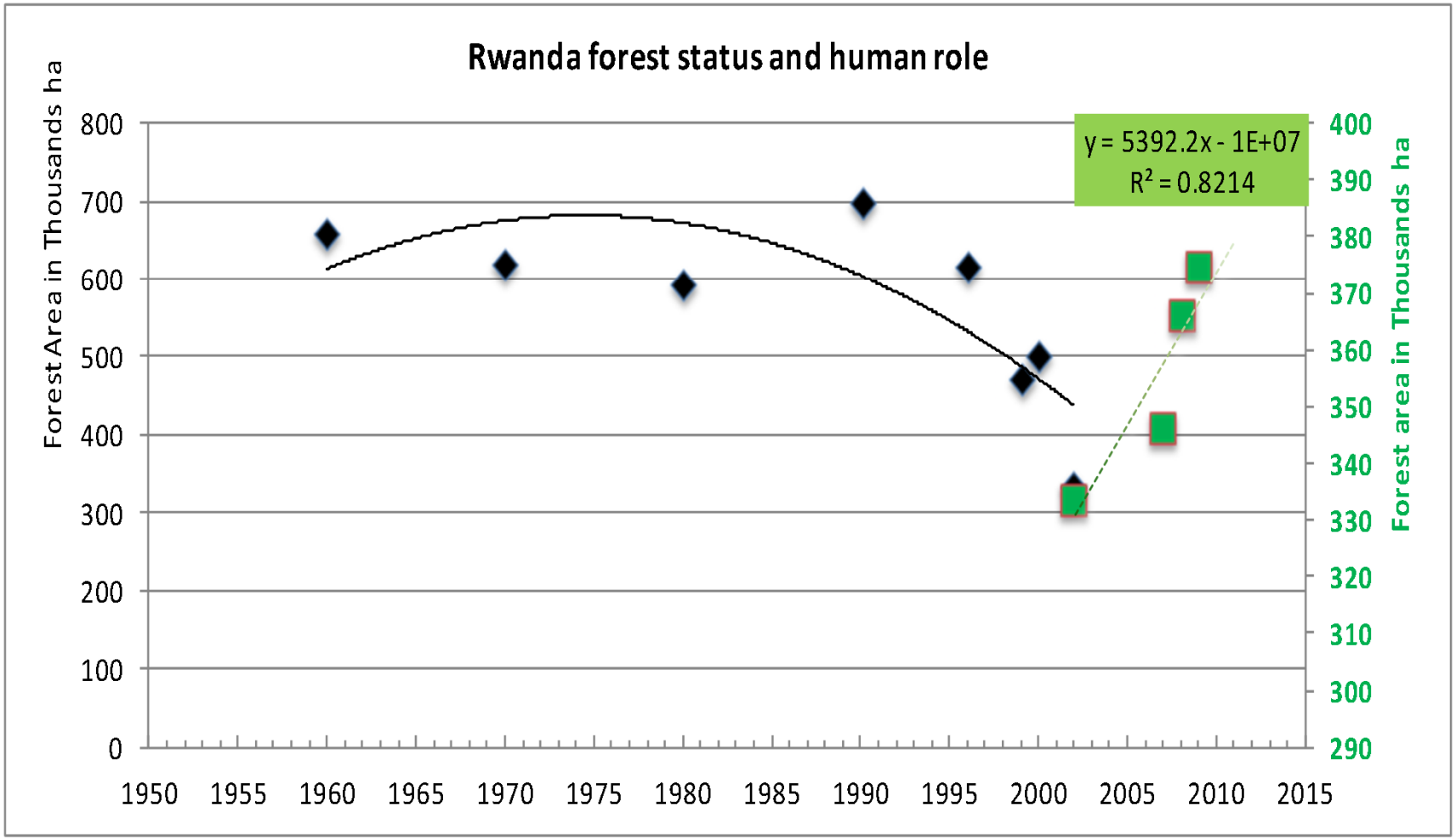
Human and climate

Consequences: progressive increase in air temperature, change in precipitation, food insecurity

Human activities have severe impacts on our atmosphere by causing greenhouse gas accumulation

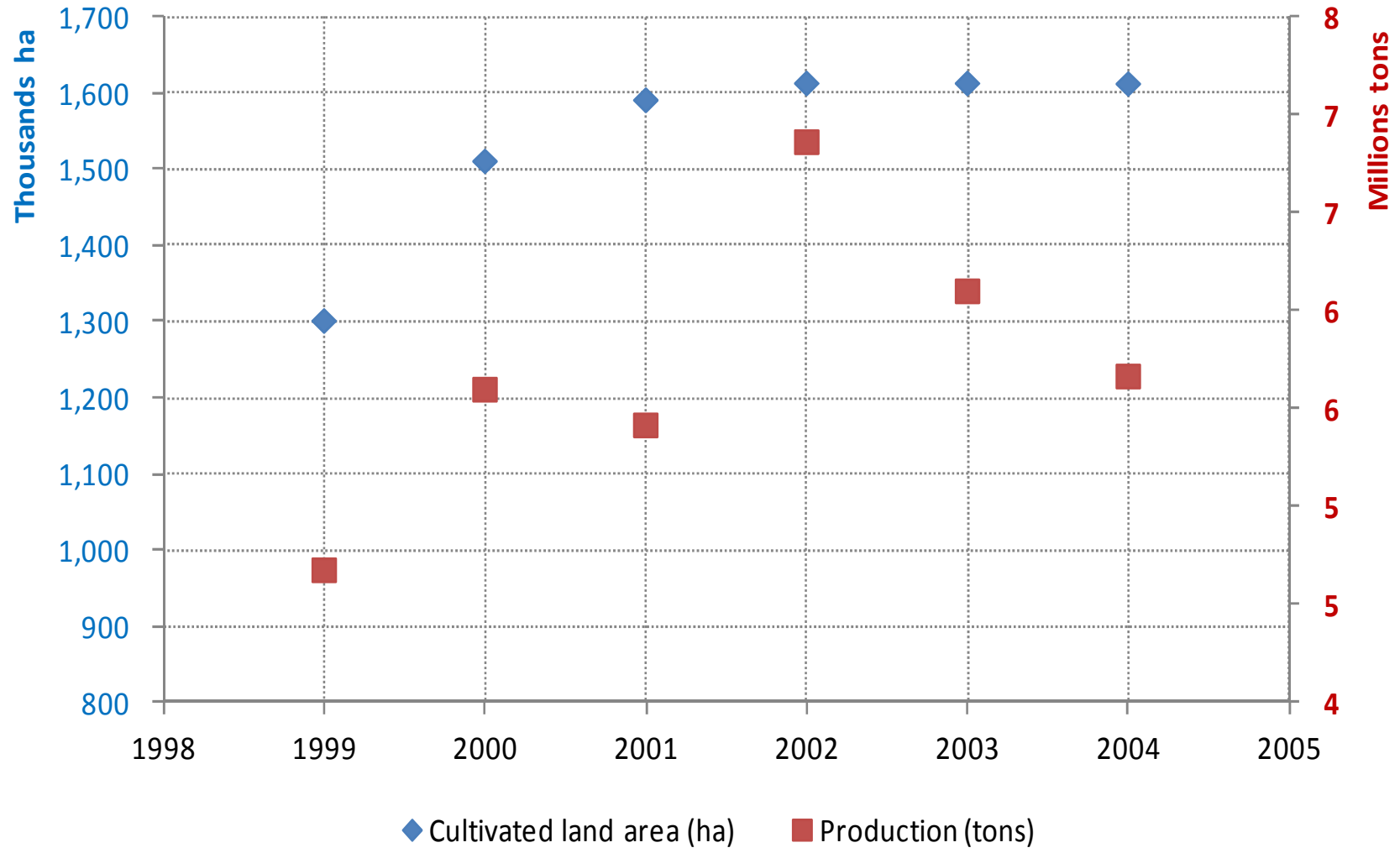
Is this situation assessable? YES




Rwanda forest status and human role
Forest Area in Thousands ha
Forest area in Thousands ha
y = 5392.2x - 1E+07
R² = 0.8214
800
700
600
500
400
300
200
100
0
400
390
380
370
360
350
340
330
320
310
300
290
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015

Crop production: cereals, pulse, banana, roots & tubers

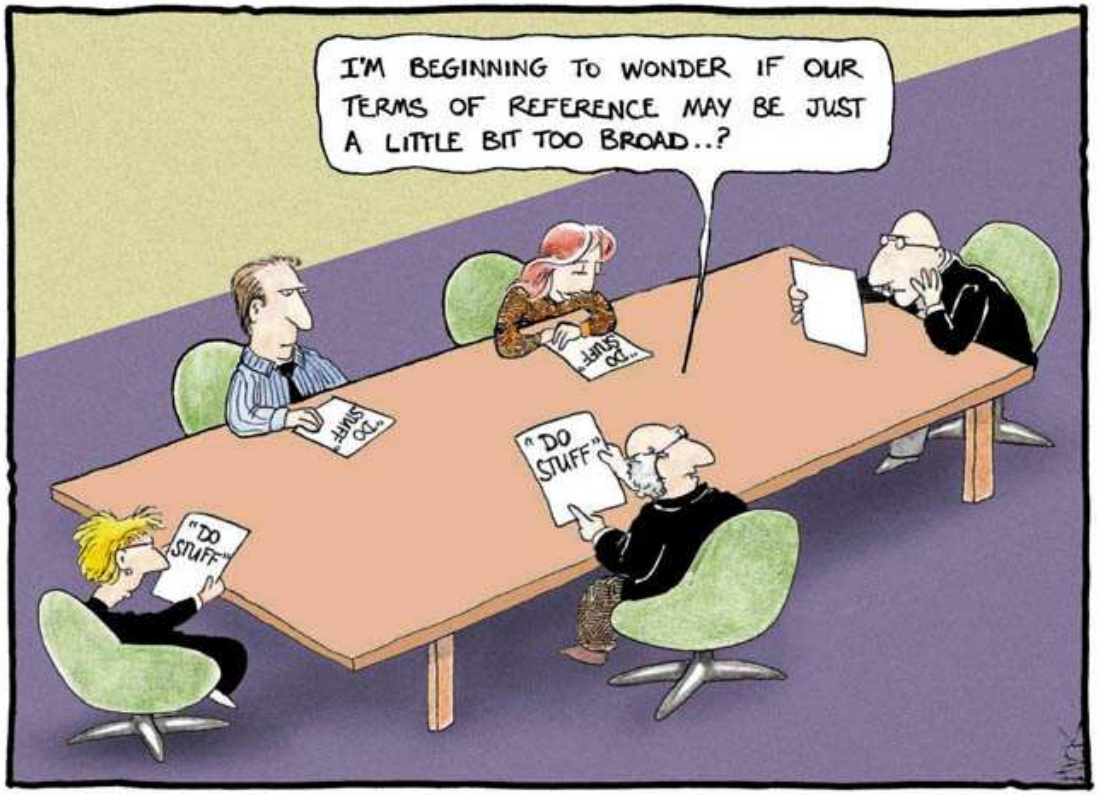
(source:Minecofin, *2004, Rwanda Development Indicators)*



Key messages

- Demand for food will increase;
- Water could not be easily accessible;
- Food producers and other stakeholders need relevant information to increase food production;
- Access to satellite imagery and data could much support agriculture as well as other domains in providing latest data and trends

Key stakeholder involvement in G4AW



Ministries & Agencies,

Agriculture,

Water sector,

Industry & Financials,

Duch Gov. & programs,

Information providers,

Others

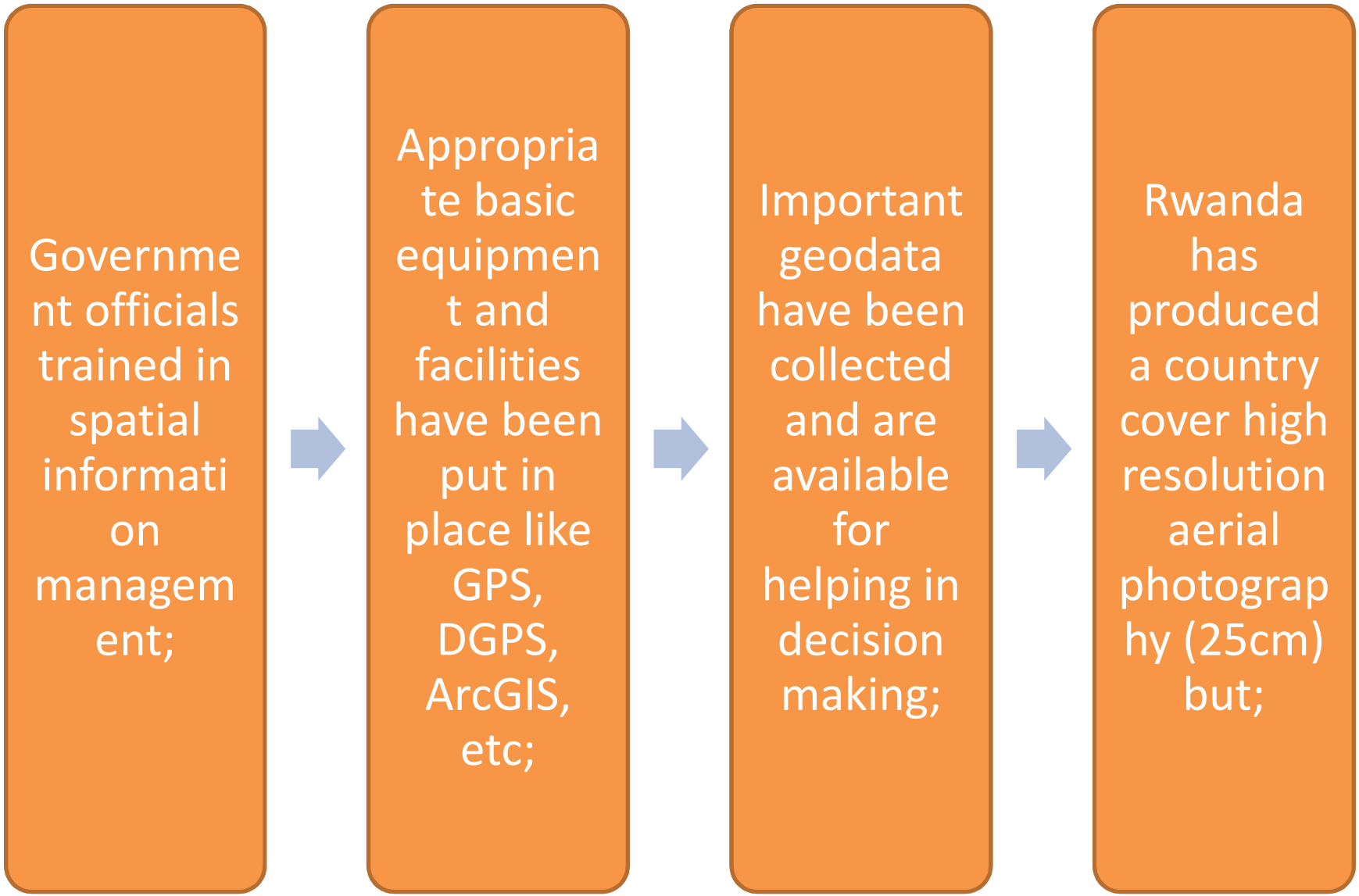
Main challenges for agricultural development

- Acidity of soil
- Population density and livelihood
- Low use of inputs and commercialization
- Climate change,
- Insufficient post harvest management,
- Limited access to financial services,
- Inadequate Water and Irrigation development,
- Insufficient infrastructure for animal production processing and storage

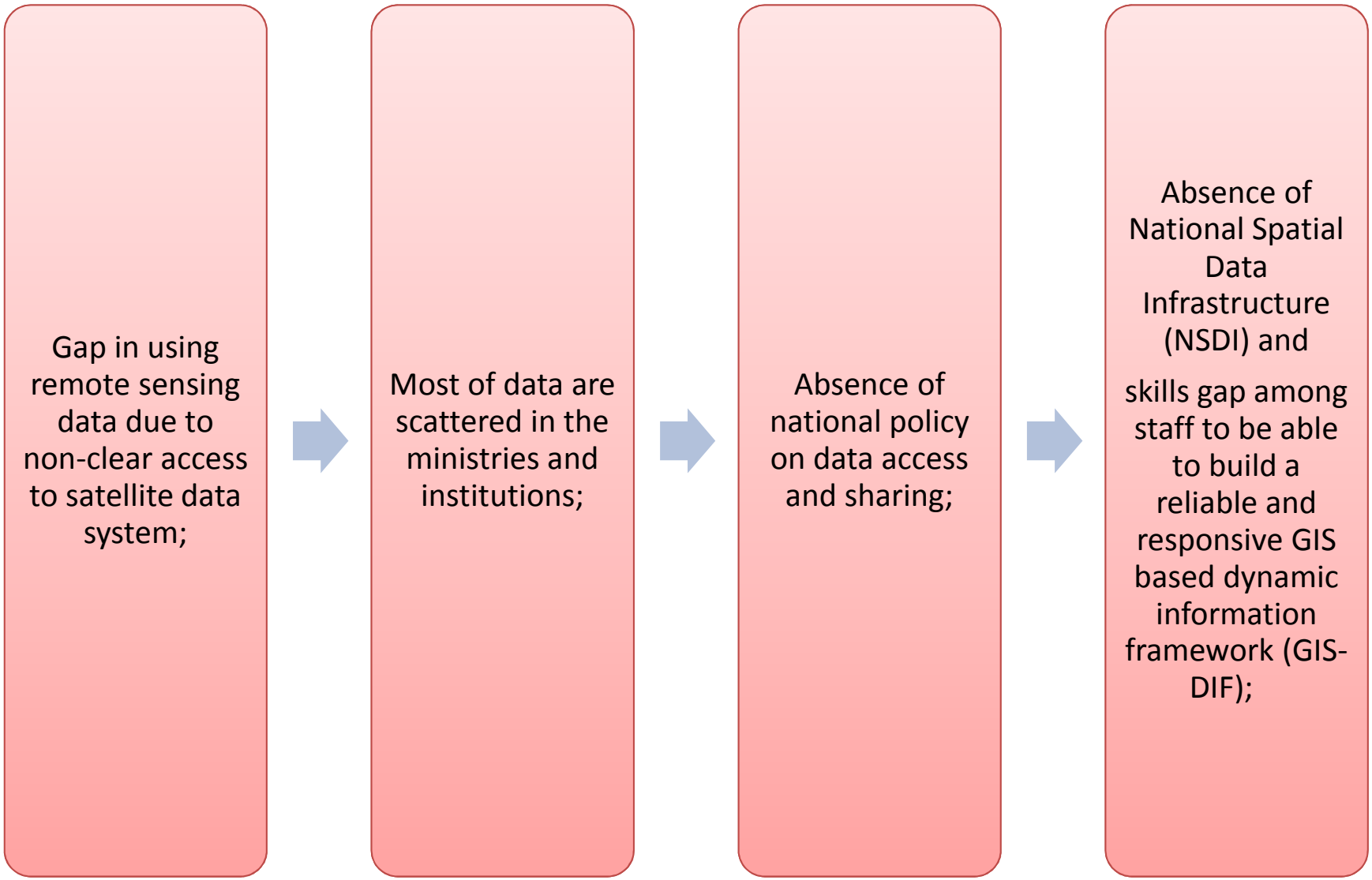
Government's efforts and policy on food security

- Good governance and political will to develop agricultural sector;
- National Agricultural Policy, approaches and programs;
- Network of micro finance institutions present in all Districts;
- Agricultural education institutions (UNR, ISAE, KIST, UNATEC…);
- Increase of small agro processing units;
- Communication facilities (local radios, newspapers, ICT);
- Participation of local communities to take part in decision-making;
- in the context of decentralization and good governance;
- existence of a good policy for cooperatives promotion and political stability in the country;
- Performance management initiative to improve delivery of public services
- Rwanda experienced different agricultural extension approaches (Farmer to Farmer, Partnership, Agricultural Knowledge Information System, etc.);

Status and problems of spatial information supply



Spatial information challenges



Information suppliers active in the agriculture domain

General information in the agriculture domain is mainly supplied by the **Ministry of Agriculture** and affiliate organizations:

- Rwanda Agricultural Board (RAB),
- National Agricultural Export Development Board (NAEB),
- Marshland and hillside irrigation projects (LWH/RSSP),
- Kirehe Watershed Management Project (KWAMP),

Collaborate with:

- Centre for Geographic Information System of University of Rwanda (CGIS),
- Rwanda Natural Resources Authority (RNRA),
- Rwanda Meteorological Agency,
- National Institute of Statistics of Rwanda (NISR) and
- Ministry of Local Government (MINALOC).

Agri-sector information supply and current mechanisms

Main spatial data producers :

- National Institute of Statistics of Rwanda (NISR),
- National Land Centre (NLC),
- CGIS (Centre for GIS),
- Other organizations combined supply.

Mechanism:

- Spatial datasets are stored as digital and/or paper maps;
- Those datasets are especially:

  administrative boundaries, topographic maps, Roads, Socio-demographic data, land use, soil map, irrigated consolidated lands, Bathymetry of Lake and orthophotos;
- They are mostly exchanged in map format printouts/hardcopies,
- shapefiles (.shp),
- (.pdf) format and,
- downloadable from the internet

Potential for sustainable spatially based information services

For the sustainability of geospatial services in Rwanda:

- A master's programme for Geo-Information science has been opened in the University of Rwanda;
- The land and mapping department has been created in RNRA with the mandate to develop policy on spatial data, Spatial Data Infrastructure (SDI), data sharing and develop geospatial services.
- The domain of micro insurance is new in Rwanda and needs to be scaled up.

Conclusion

Spatial based (satellite) information can improve food security in Rwanda

Eg:

- Agro-insurance services
- agricultural yield forecast
- agriculture production mapping,
- Flood forecasting
- etc

Thank you…