



RWANDA NATURAL RESOURCES AUTHORITY

Department of Lands and Mapping

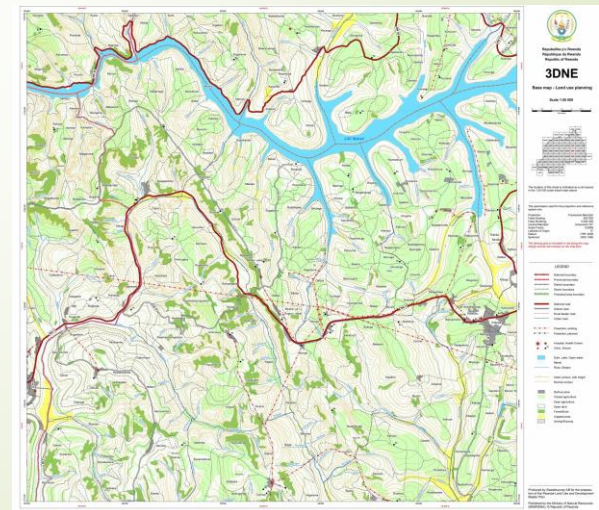


Rwanda new Basemap and data sharing portal

Ir Jean Maurice MUNEZA
Photogrammetrist
Rwanda

CBFP Meeting
Kigali International Convention
center

November 21th,2016



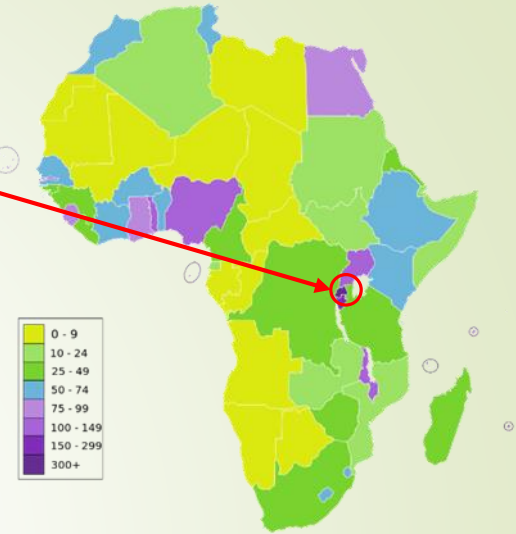
AGENDA

- ❖ Introduction
- ❖ Need of new Basemap
- ❖ New Basemap preparation
- ❖ Basemap content
- ❖ Data sharing portal
- ❖ Future development



RWANDA IN BRIEF

- ✓ Area: 26,338 Sqm
- ✓ Land locked East African country
- ✓ Pop (2013): 11.38 m
- ✓ Pop Dens. (2013): +400/sqkm



VISION 2020

- Good governance and a capable state
- ICTs in all sectors of the economy
- Infrastructure development
- Protection of environment and sustainable natural resource management



From an agrarian to knowledge-based economy

NEED OF NEW BASEMAP

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- Rwanda one of fast developing economy
- Characterized by high population density.
- Increase of infrastructure (roads, building,...)

Spatial tools

- ✓ To guide the development in all sectors
- ✓ Provide spatial relationships for decision making
- ✓ To monitor this development in effective way.
- ✓ Much needed in Land use Master plan preparation

Basemap



Map on which information may be placed for purposes of comparison or geographical correlation



Planning and development by providing boundaries, elevation, hydro, social infrastructure, physical infrastructure etc

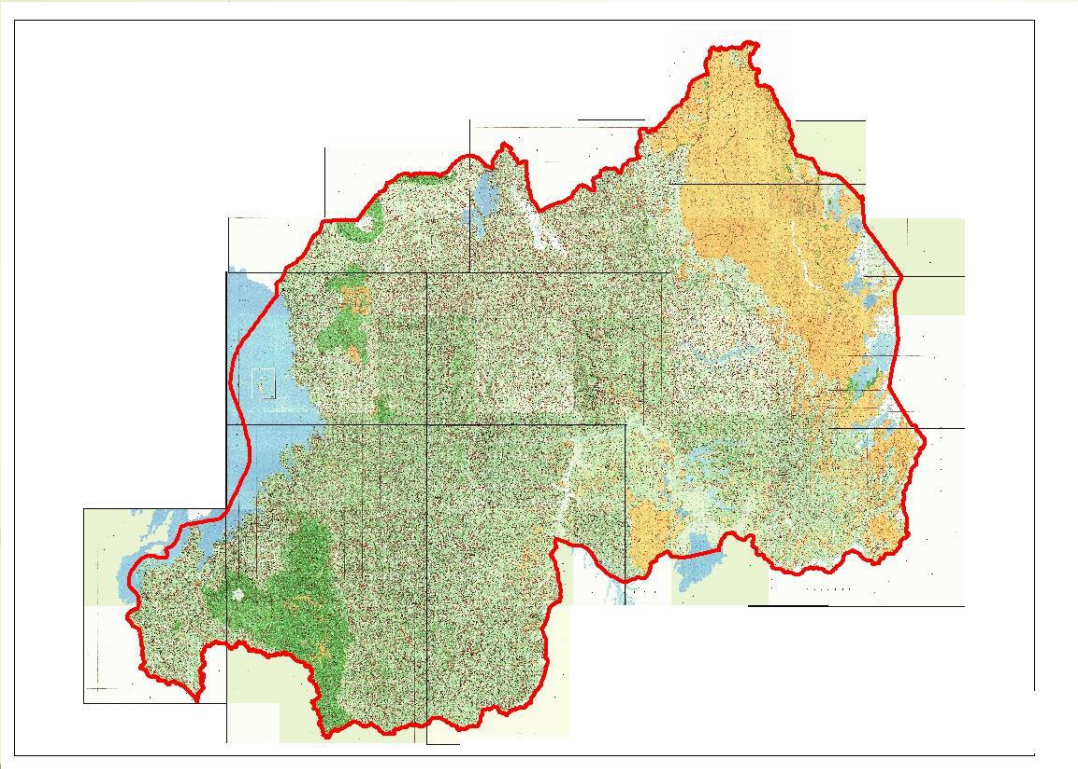


NEW BASEMAP PREPARATION

EXISTING SPATIAL DATA

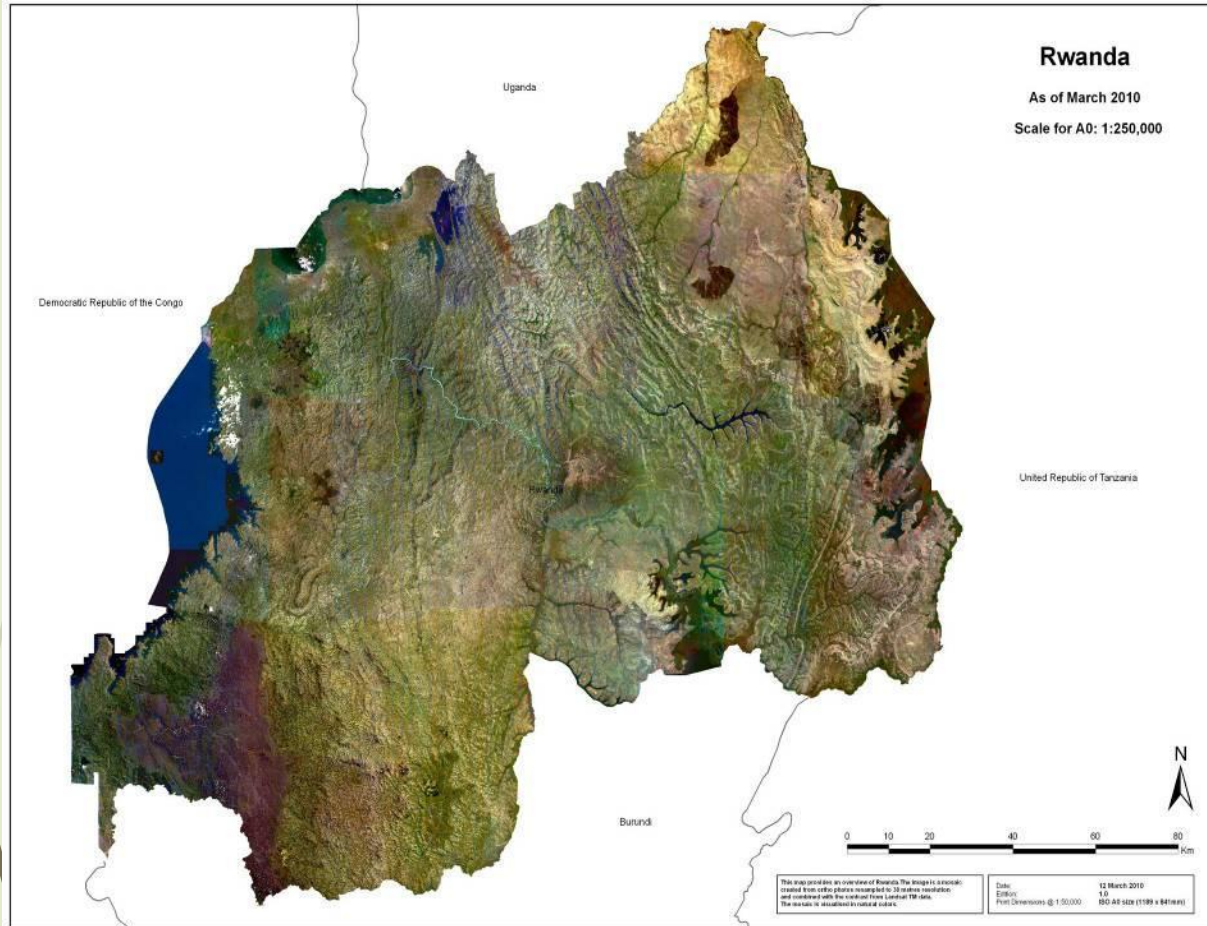
5

- Topographic Map of 1978 - 1989



- Datasets from different institutions (NISR, RHA, RTDA,..)
- Many were old (Need of update)

NEW BASEMAP PREPARATION NEW ORTHOPHOTO



- 25 Cm resolution
- 96% Aerial Photo
- 4% high resolution satellite Images
- Summer2008-2009

Used to digitize:

- Roads
- Rivers
- Schools
- Health centers
- Centers,.....

Used in land
registration

NEW BASEMAP PREPARATION NAME & GROUNDVERIFICATION

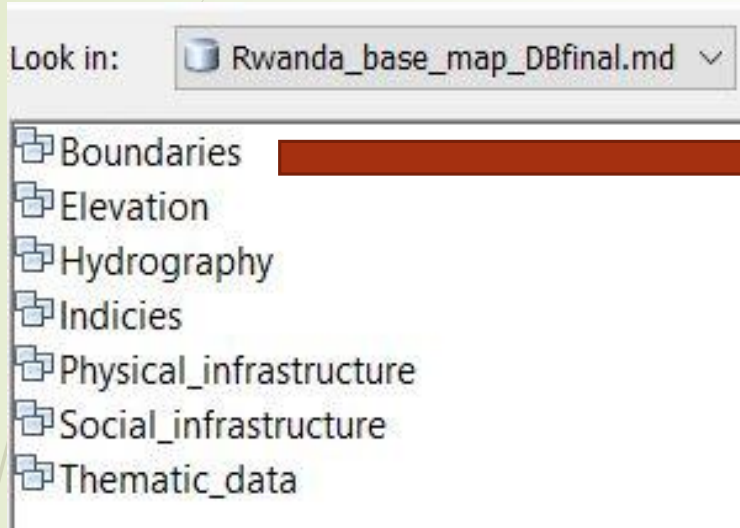
Names & Ground verification

- ✓ Use of printed sheet and GPS
- Attributes
- Names : Rivers,roads,electric lines,....
- completeness

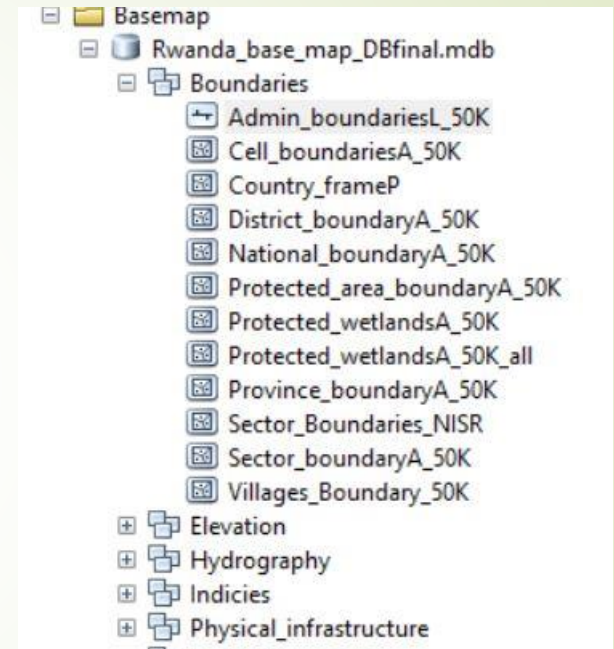


BASEMAP CONTENT

6 Main areas



Boundaries

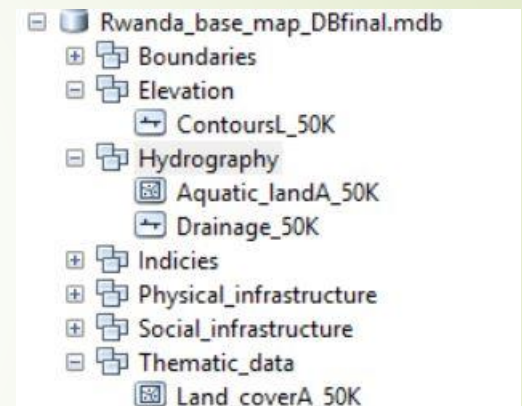
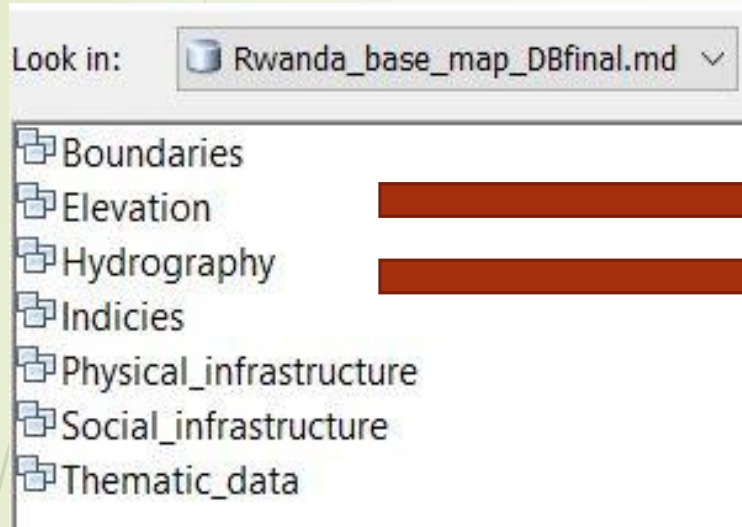


Boundaries : Feature dataset has been devised for storage of all data layers related to boundaries, i.e. administrative boundaries, protected area boundaries, restricted areas, etc.

BASEMAP CONTENT

6 Main areas

Hydrography&Elevation



Elevation feature dataset stores all layers related to elevation :contours, spot heights, trigonometric network, etc.

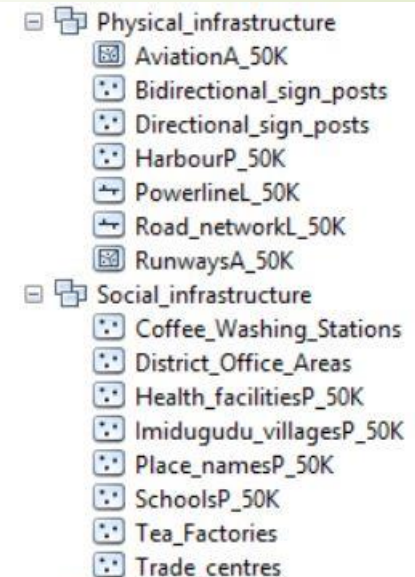
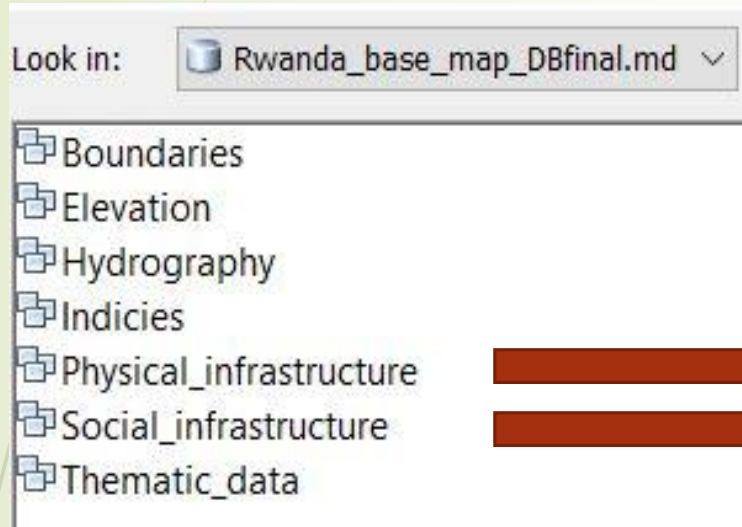
■**Hydrography**: The hydrography feature dataset has been devised for storage of all layers related to hydrography, i.e. drainage lines, water bodies, wells, water points, etc.

Thematic data feature dataset is intended for all layers related to thematic data, i.e. land cover/land use, geology, soils

BASEMAP CONTENT

6 Main areas

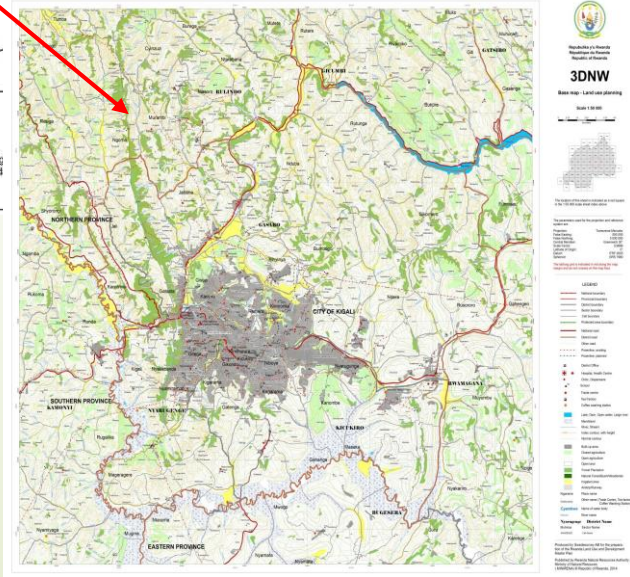
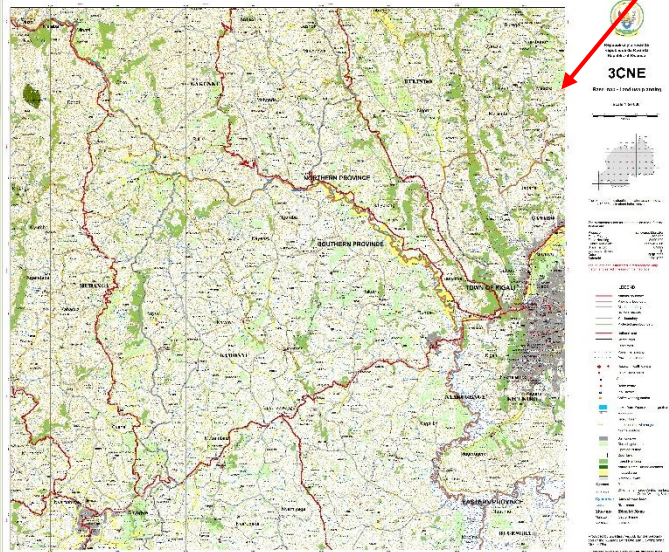
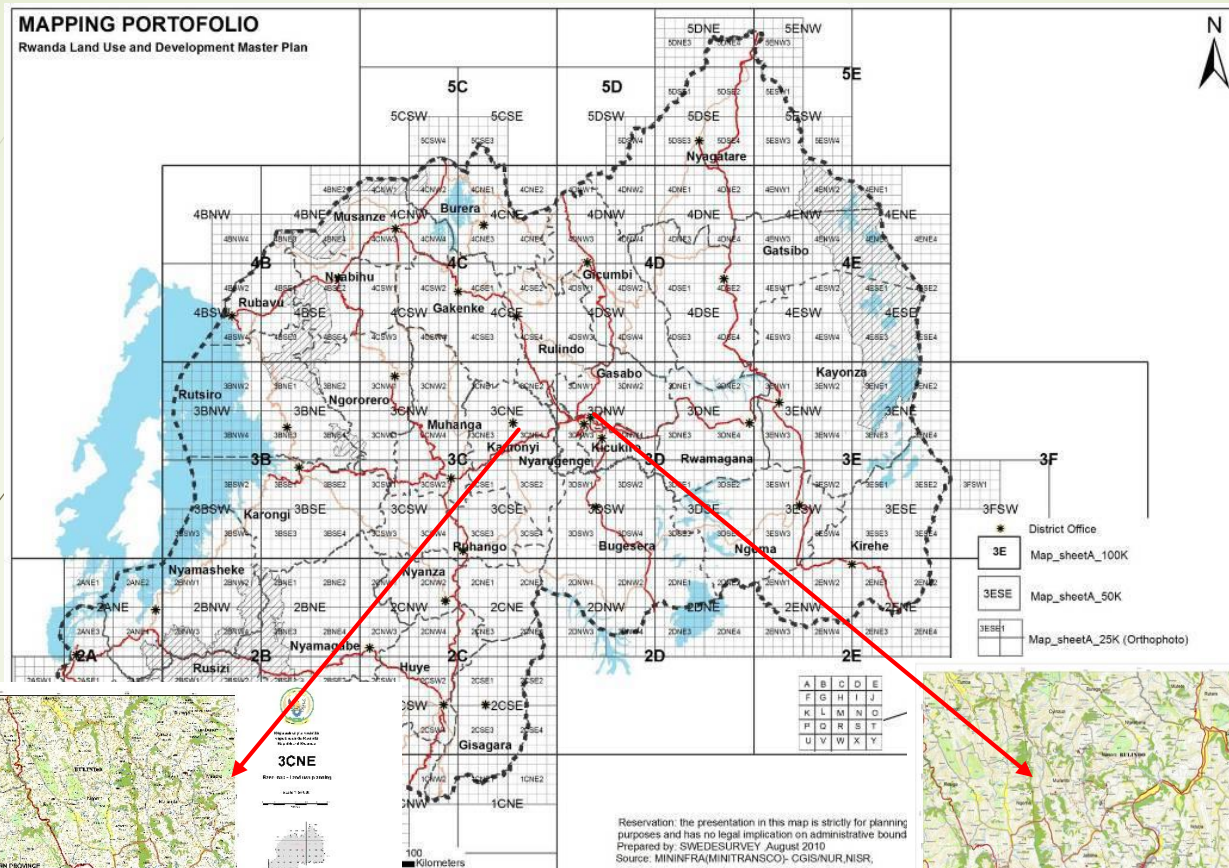
Infrastructures



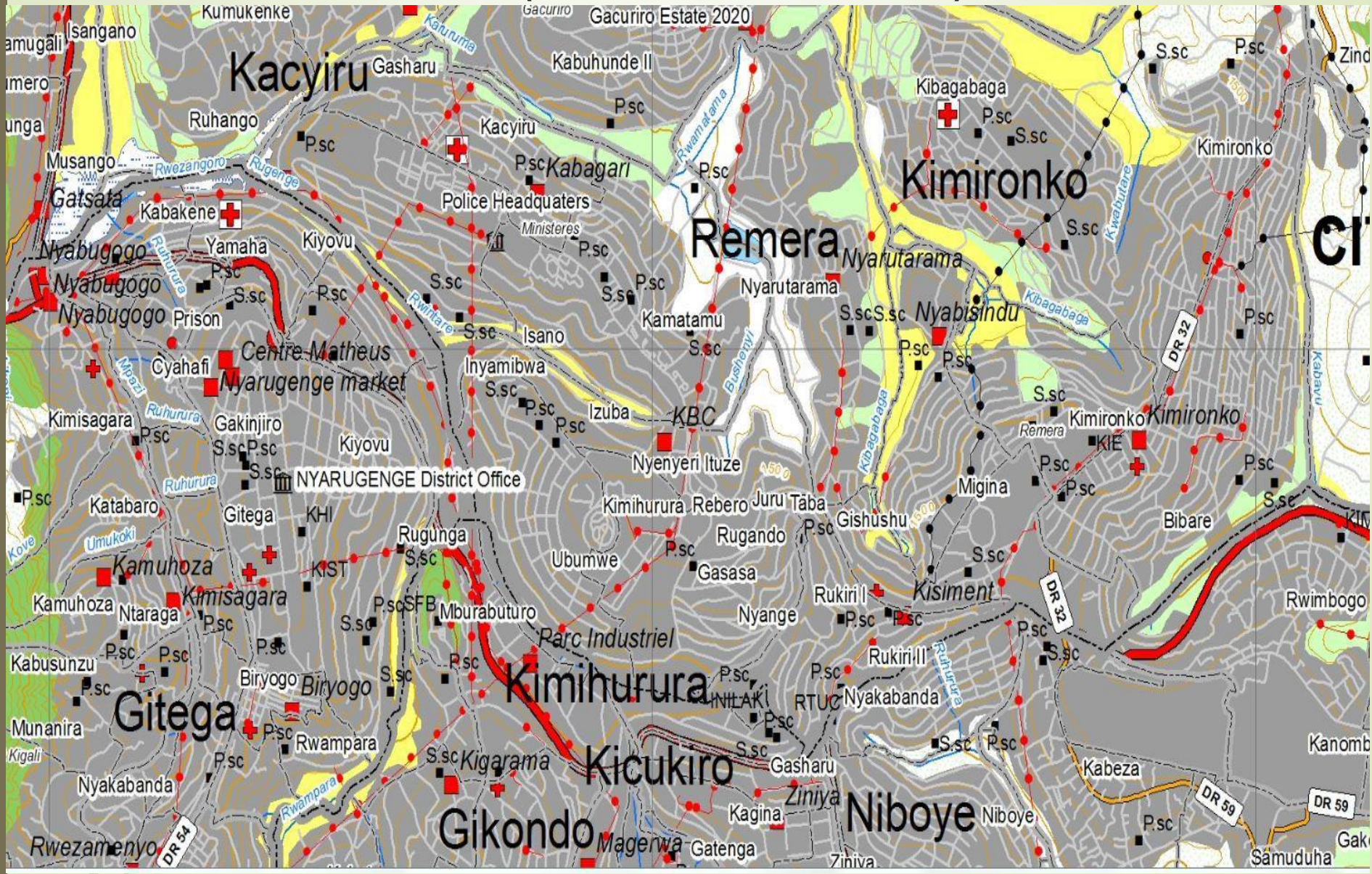
Physical infrastructure feature dataset has been devised for storage of all layers related to physical infrastructure, i.e. roads, railways, power lines,

Social infrastructure dataset is used for all datasets related to social infrastructure, i.e. health, education, governmental offices, markets, imidugudu Villages, schools, places names...

NEW BASEMAP (LAUNCHED 2014)



12 NEW BASEMAP (LEVEL OF DETAILS)



13 BASEMAP (USED IN LAND USE MASTER PLAN)

DISTRIBUTION OF SCHOOLS

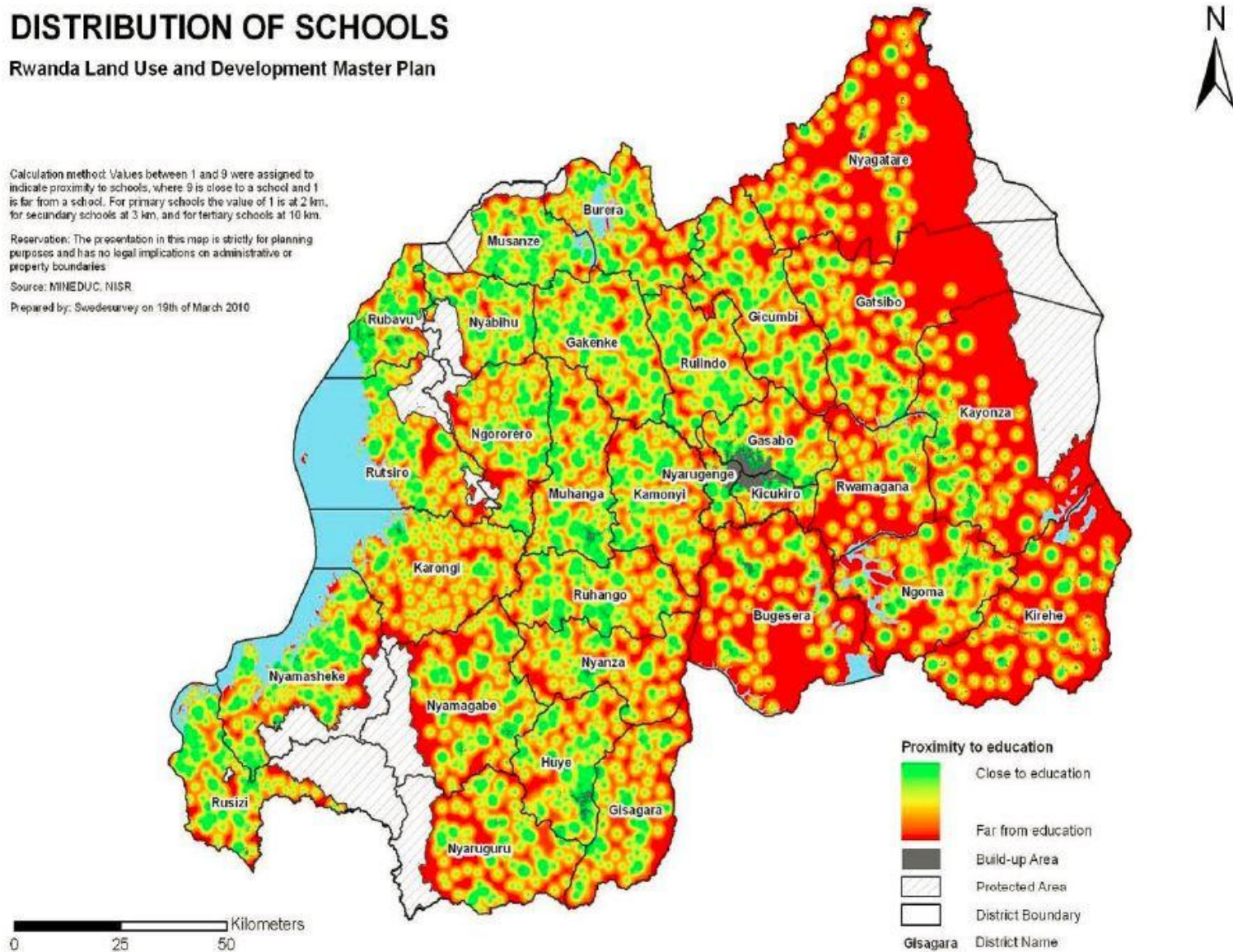
Rwanda Land Use and Development Master Plan

Calculation method: Values between 1 and 9 were assigned to indicate proximity to schools, where 9 is close to a school and 1 is far from a school. For primary schools the value of 1 is at 2 km, for secondary schools at 3 km, and for tertiary schools at 10 km.

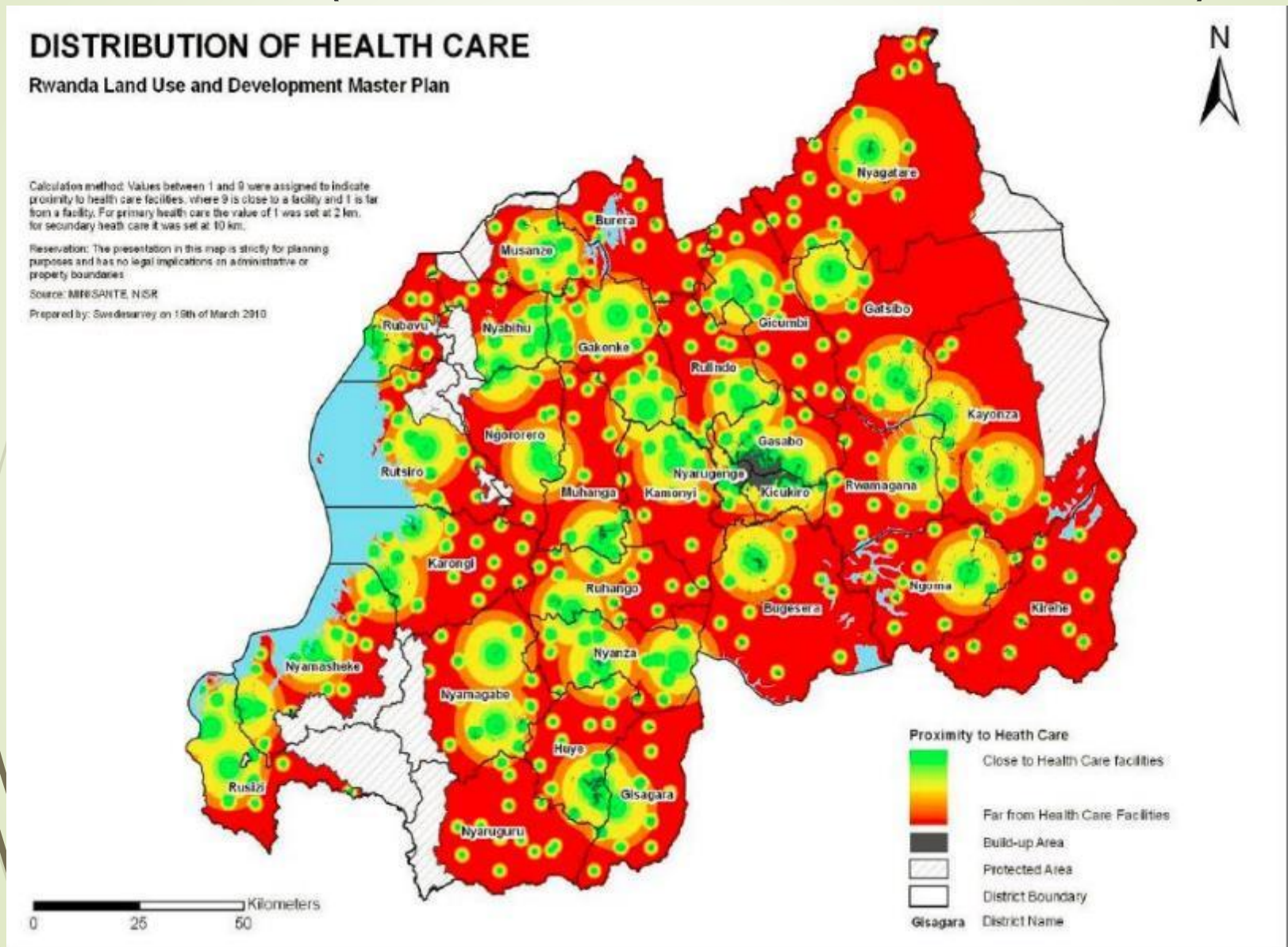
Reservation: The presentation in this map is strictly for planning purposes and has no legal implications on administrative or property boundaries

Source: MINEDUC, NISR

Prepared by: Swedesurvey on 19th of March 2010



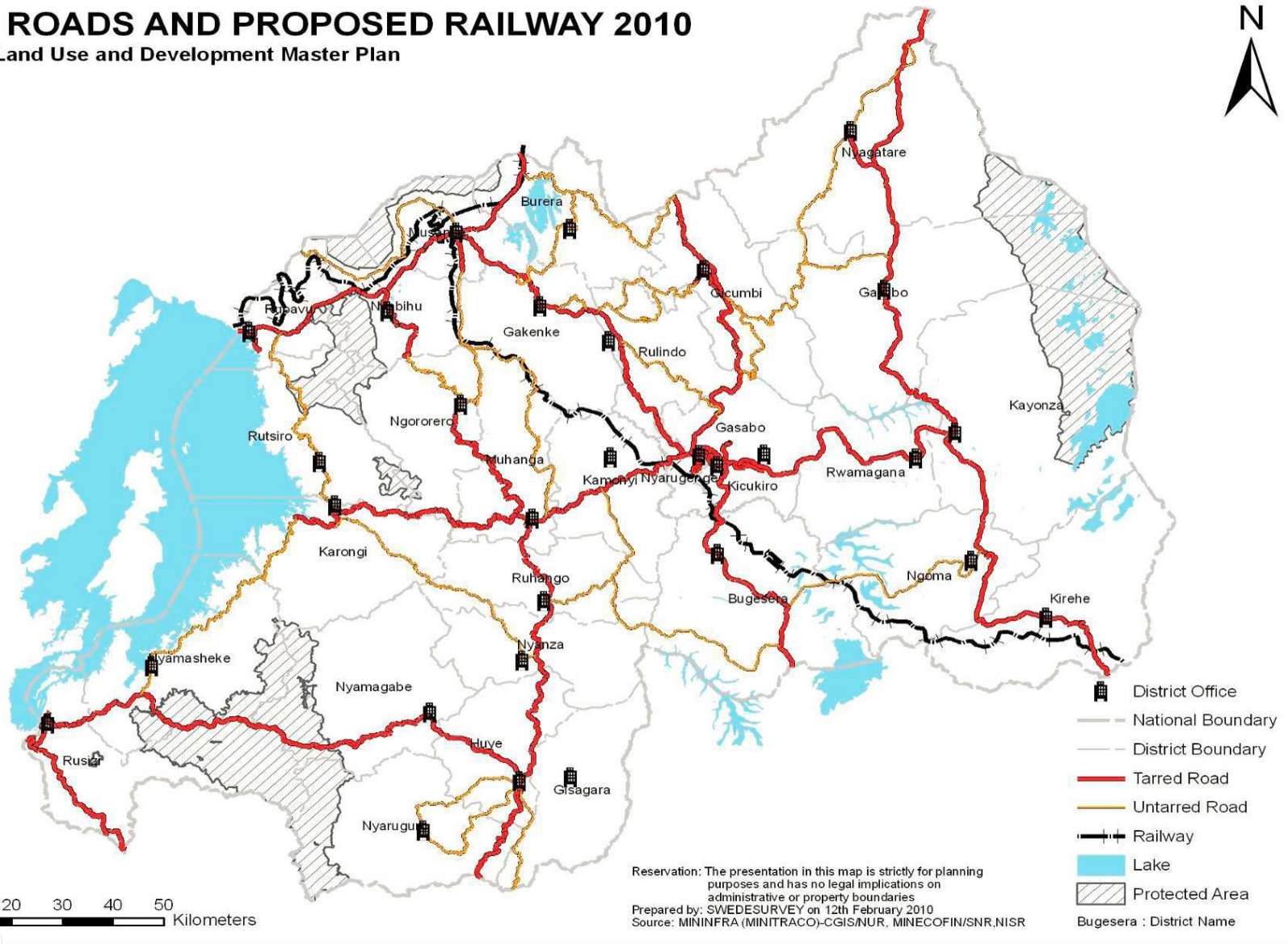
14 BASEMAP (USED IN LAND USE MASTER PLAN)



BASEMAP (USED IN LAND USE MASTER PLAN)

MAIN ROADS AND PROPOSED RAILWAY 2010

Rwanda Land Use and Development Master Plan



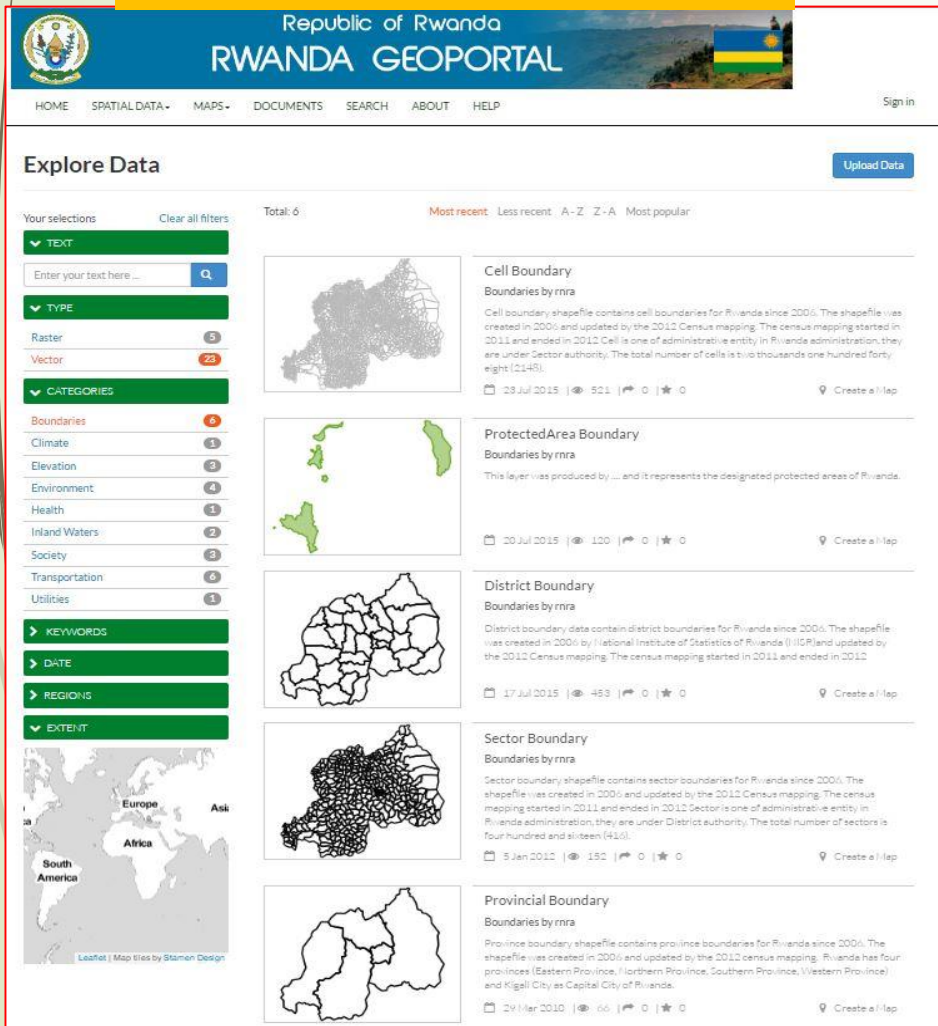
BASEMAP :SHARING PORTALS

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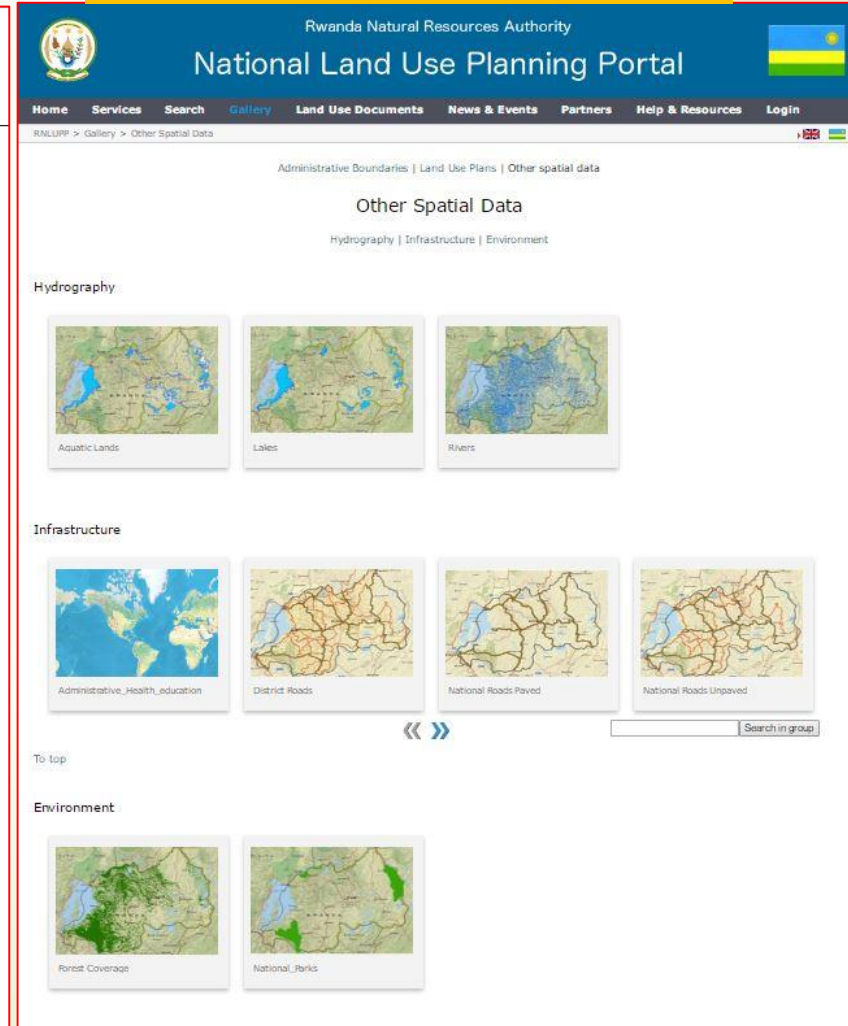
2 Data sharing portals

www.rwandageoportal.rnra.rw

www.rwandalanduse.rnra.rw



The screenshot shows the Rwanda Geoportal interface. At the top, it features the Republic of Rwanda logo and the text "RWANDA GEOPORTAL". Below this is a navigation bar with links: HOME, SPATIAL DATA, MAPS, DOCUMENTS, SEARCH, ABOUT, and HELP. A "Sign in" link is also present. The main section is titled "Explore Data" and includes a sidebar with filters for TEXT, TYPE (Raster, Vector), and CATEGORIES (Boundaries, Climate, Elevation, Environment, Health, Inland Waters, Society, Transportation, Utilities). A "KEYWORDS" section is also visible. The main content area displays a list of spatial data layers, each with a thumbnail map and a description. The layers include: Cell Boundary, Protected Area Boundary, District Boundary, Sector Boundary, and Provincial Boundary. Each layer entry shows the date of creation, the number of users, and a "Create a layer" button.



The screenshot shows the Rwanda National Land Use Planning Portal interface. At the top, it features the Rwanda Natural Resources Authority logo and the text "National Land Use Planning Portal". Below this is a navigation bar with links: Home, Services, Search, Gallery, Land Use Documents, News & Events, Partners, Help & Resources, and Login. The main section is titled "Other Spatial Data" and includes a sidebar with links: Administrative Boundaries, Land Use Plans, and Other spatial data. The main content area displays a grid of spatial data layers, each with a thumbnail map and a title. The layers include: Aquatic Lands, Lakes, Rivers, Administrative Health Education, District Roads, National Roads Paved, National Roads Unpaved, Forest Coverage, and National Parks. A "Search in group" button is located at the bottom right.

BASEMAP :RWANDA GEOPORTAL

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www.rwandageoportal.rnra.rw

Rwanda spatial data sharing portal :

- Government agencies
- Private & NGO
- Institutions (academic,..)
- General public

- In line of National Spatial Data Infrastructure (NSDI) Policy

Users can:

- Download data
- Download documents
- Download metadata
- Make online maps using available datasets

- Built on open source: Geonet

The screenshot shows the Rwanda GeoPortal website. At the top is a blue header with the Republic of Rwanda logo and the text 'RWANDA GEOPORTAL'. Below the header is a navigation menu with links: HOME, SPATIAL DATA, MAPS, DOCUMENTS, SEARCH, ABOUT, and HELP. The main content area features a large map of Rwanda with the text 'Welcome to the Rwanda GeoPortal' and 'Online platform for spatial data sharing among Public, Private and Non-Governmental institutions as well as the general public.' Below this is a red 'About' button. At the bottom, there are three sections: 'SPATIAL DATA' with a 3D map icon, 'MAPS' with a 2D map icon, and 'Documents' with a folder icon. Each section has a brief description of its content.

Republic of Rwanda
RWANDA GEOPORTAL

HOME SPATIAL DATA MAPS DOCUMENTS SEARCH ABOUT HELP

Welcome to the **Rwanda GeoPortal**

Online platform for spatial data sharing among Public, Private and Non-Governmental institutions as well as the general public.

About

SPATIAL DATA
Browse geospatial data published by government agencies, organizations and public sources. Download data in

MAPS
Interactive and Static maps available for browsing and visualization.

Documents
Map related data, documents, spreadsheets and

BASEMAP : RWANDA LAND USE PORTAL

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www.rwandalanduse.rnra.rw

Land use plans and related information

- National Land use Master plans
- District Land use Master Plans
- Urban Development Master plans
- Cell level land use maps

To
make
them
easily
accessi
ble

To users and
decision
makers

Advantages

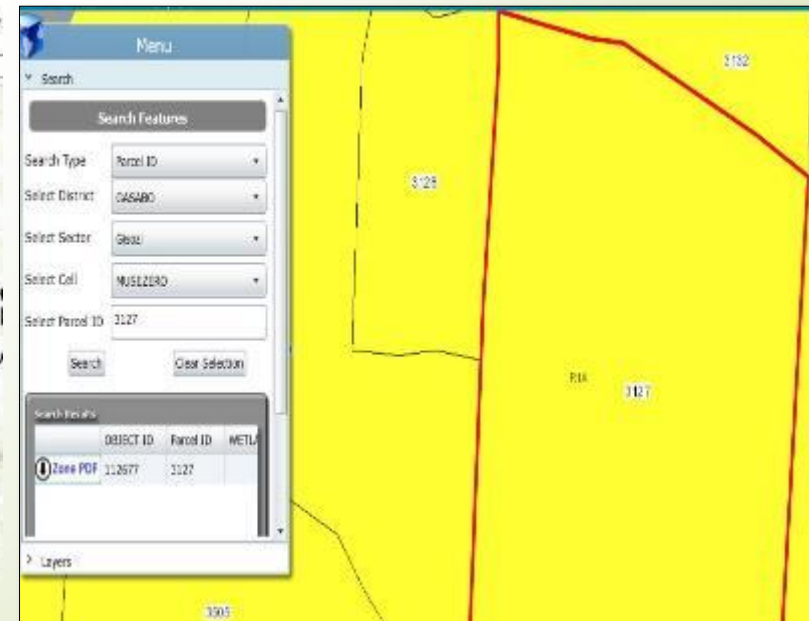
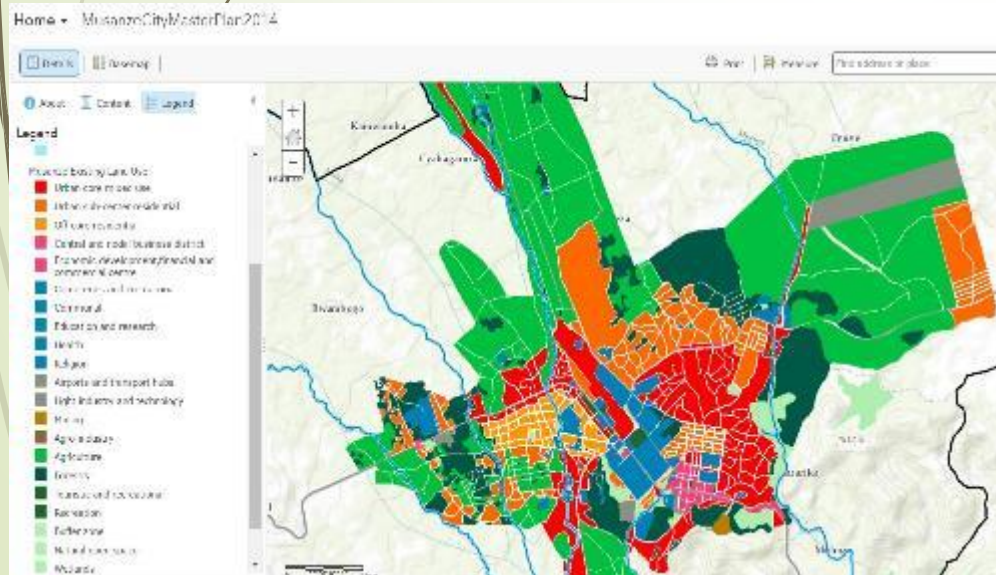
- Quick and easy access to up to date and accurate data on land use planning data at a minimum cost;
- Increased awareness on land use planning in Rwanda;
- Increased transparency in accessing to data/information on land use planning.



www.rwandalanduse.rnra.rw

Services :

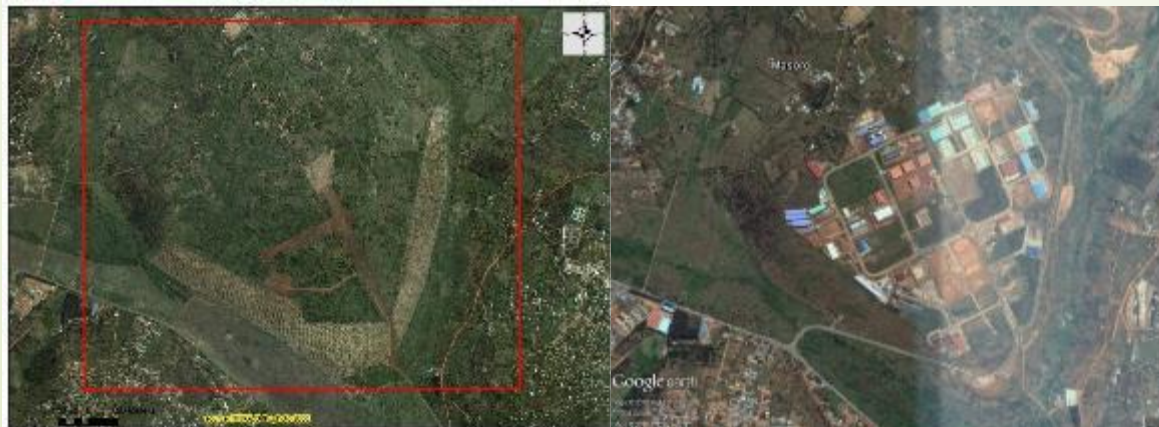
- Check land use of parcels
- Downloads datasets used in land use planning
- Make online maps using available online data(land use,..)
- Decision making before any development



BASEMAP FUTURE PLANS

Keep updating the current basemap – do corrections:

- Need institutions custodian of data to provide them
- Update metadata
- Produce large scale map for Cities 1:2000(Reduce dependency on orthophoto)



Thank You for your attention

MURAKOZE

