

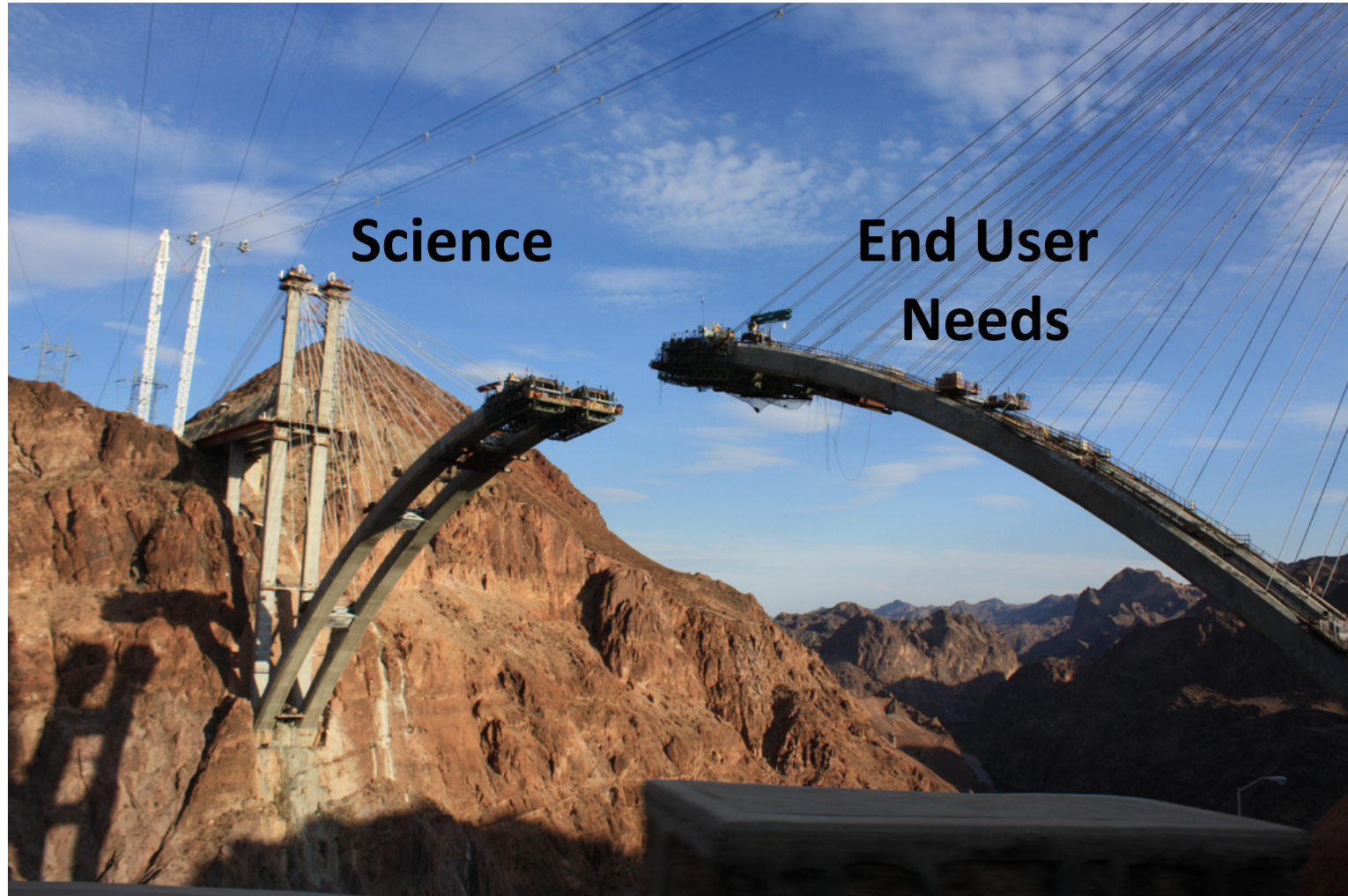
# SERVIR

## Connecting Space to Village

Ashutosh Limaye, SERVIR Project Scientist  
NASA Marshall Space Flight Center



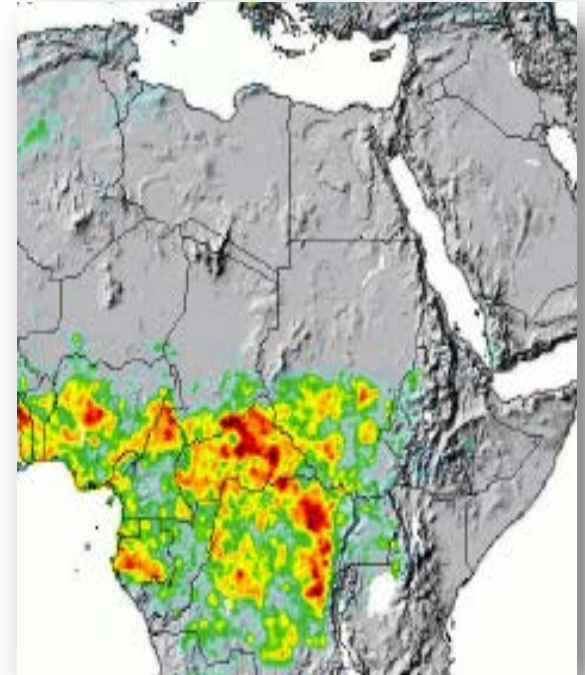
# Linking Science to End User Needs



Courtesy: alifayre

# What We Do

- Identify needs in SERVIR regions
- Link science products from research institutions to meet those needs through improved access to data, models, online maps, and visualizations
- Build capacity of regional institutions, stakeholders, and young professionals
- Strengthen partnerships and foster collaboration across SERVIR network



# The SERVIR Network



NASA MSFC / SERVIR  
Coordination Office

USAID Washington  
NASA Headquarters

SERVIR AST Projects  
in Mesoamerica

SERVIR West Africa  
AGHYMET

SERVIR Eastern & Southern Africa  
RCMRD

SERVIR Himalaya  
ICIMOD

SERVIR Mekong  
ADPC

- ★ SERVIR Regional Hub Organization
- ★ USAID Regional Mission
- ◆ USAID Bilateral Mission

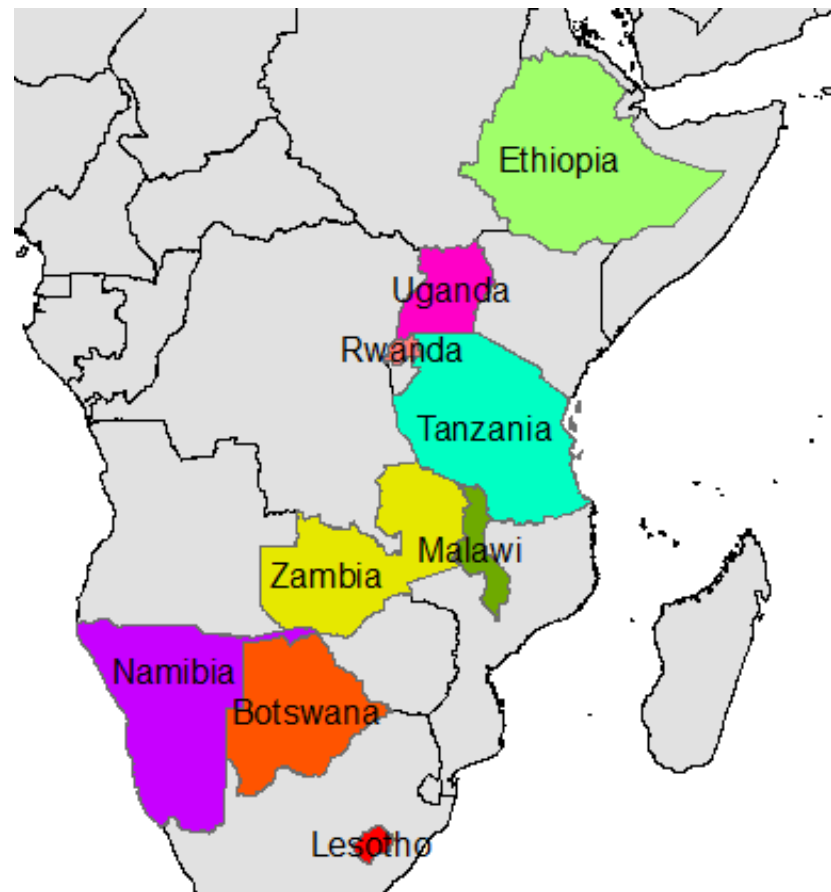


- Water and related disasters
- Agriculture and food security
- Weather and Climate
- Land Cover and Ecosystems
  - Several efforts are underway within SERVIR, today only highlighting SERVIR Eastern and Southern Africa's Land Cover Mapping initiative

# SERVIR Eastern and Southern Africa Land Cover Mapping Program

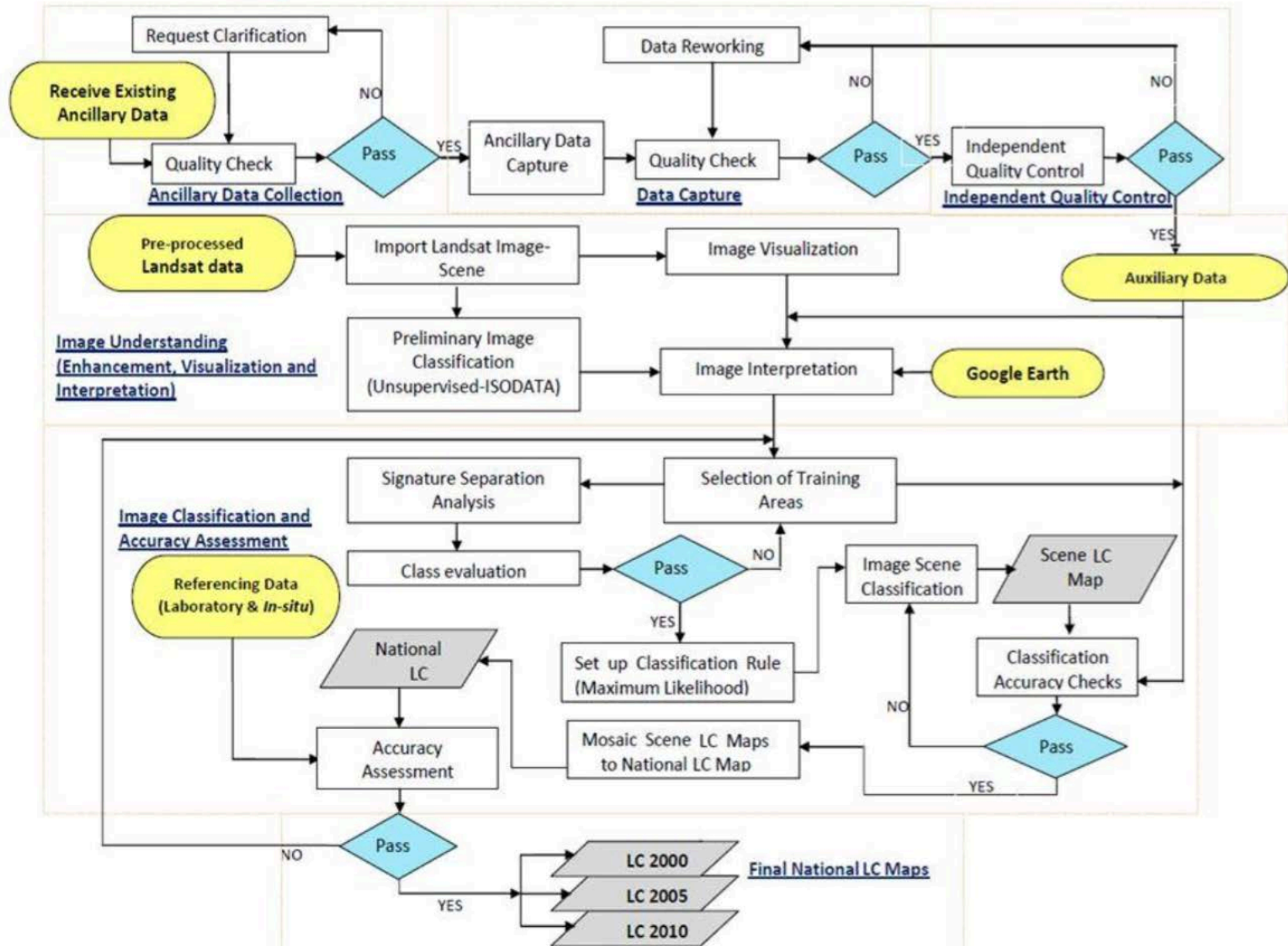


- Collaboration started in support of GHG emissions inventory effort led by US EPA and UNFCCC in 2012.
- Countries included in creating land cover maps in collaboration with ministries:
  - Malawi
  - Rwanda
  - Tanzania
  - Zambia
  - Namibia
  - Botswana
  - Ethiopia
  - Uganda
  - Lesotho



# Land Cover Classification Workflow

## Methodology and Workflow:



# Co-Development of Land Cover Maps

SERVIR 



Ancillary Data Collection Workshops at government ministries



Capacity Building through Visiting Scientist Programs



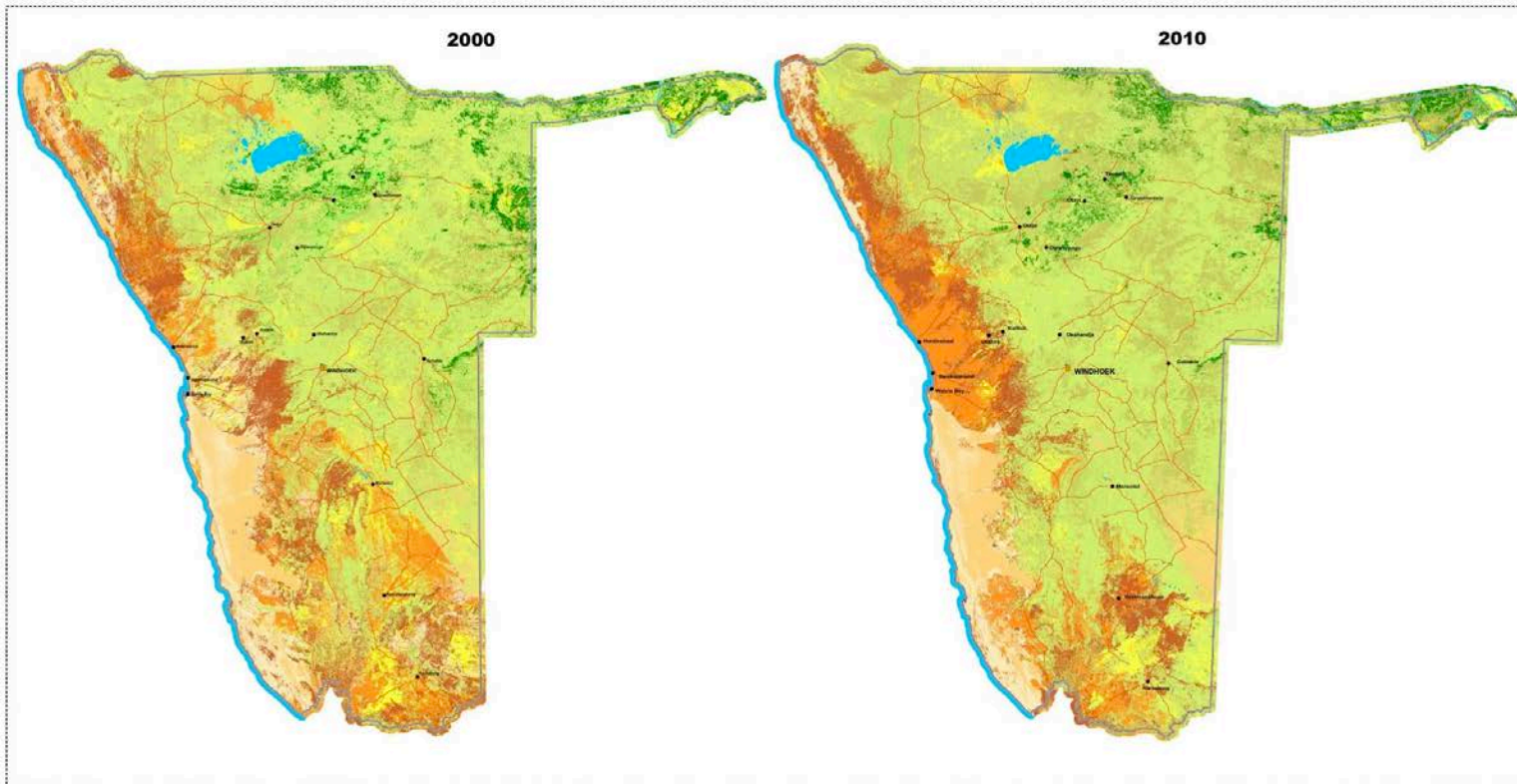
Field Data Collection in Collaboration with ministries



# Namibia Land Cover Maps



NAMIBIA SCHEME II LAND COVER



**DATA AND MAP INFORMATION SOURCES**

The land cover maps were derived from Landsat TM and ETM+ images of 2000 and 2010 acquired from the USGS. Roads, boundaries and towns were compiled from Department of Surveys and Mapping.

**Input/Output parameters**

Coordinate System: UTM, Zone 33S  
 Projection: Transverse Mercator  
 False easting: 500000.0  
 False northing: 5000000.0  
 Central meridian: 17.0  
 Scale factor: 0.99960763  
 Latitude of origin: 0.0  
 Linear Unit: Meter (1.0)  
 Geographic Coordinate System: GCS: Clarke, 1886  
 Angular Unit: Degree (0.1745329251994329)  
 Prime Meridian: Greenwich (0.0)  
 Datum: D. Clarke, 1886  
 Spheroid: Clarke, 1886  
 Semimajor Axis: 6379264.4  
 Semiminor Axis: 6356233.77095811  
 Inverse Flattening: 294.6708982

Scale: 1:2,500,000



**LEGEND**

Forestland	Shrubland	Vegetated Wetland	Rock Outcrop	Capital
Woodland	Savanna Grassland	Water Body	Bare Soil	Towns
Grassland	Annual Cropland	Settlements	Desert Dune	Roads
			Desert Sand	National Boundary

**Disclaimer:**

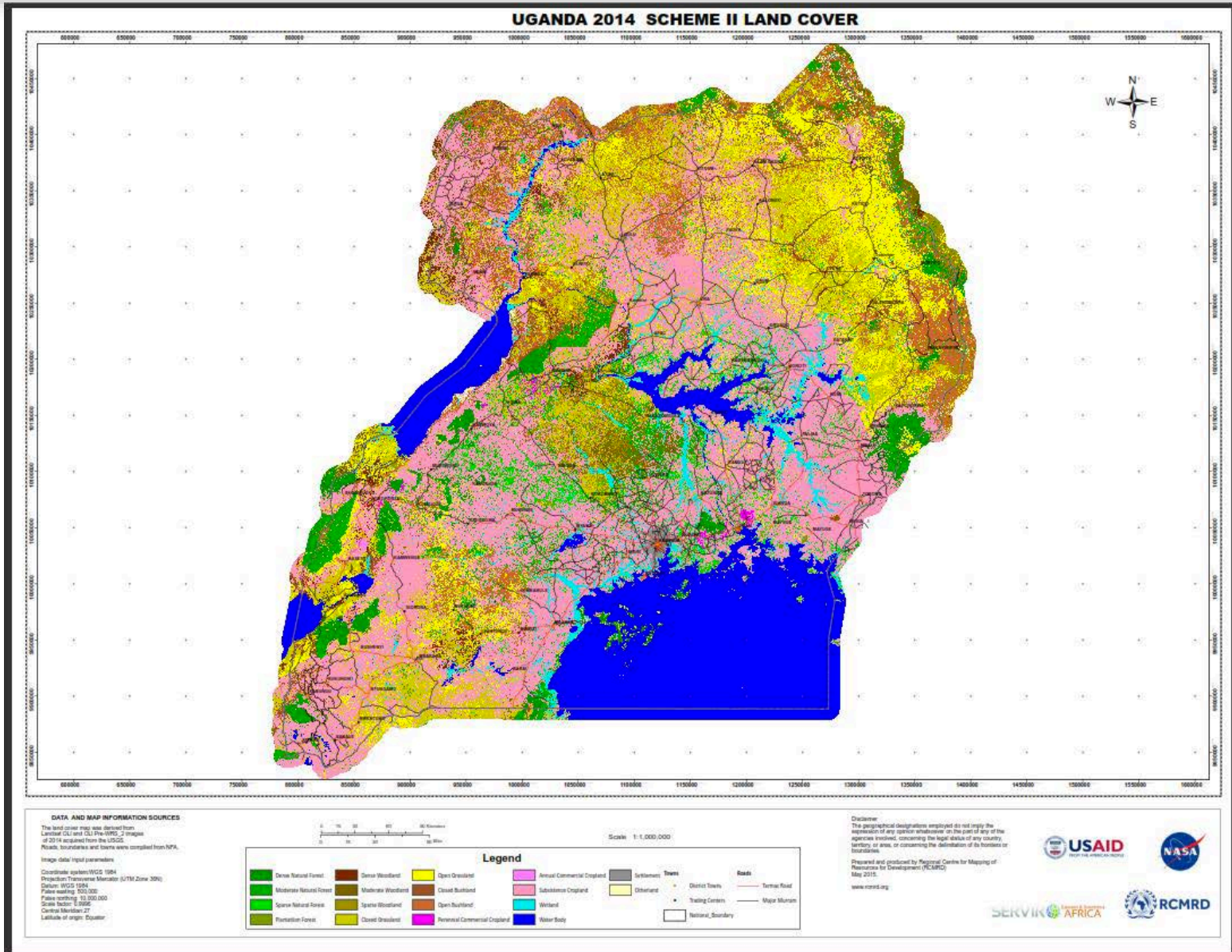
The geographical designations employed do not imply the expression of any opinion whatsoever on the part of any of the agencies involved, concerning the legal status of any country, territory or area or concerning the delimitation of its borders or boundaries.

Prepared and produced by Regional Centre for Mapping of Resources for Development (RCMRD)  
 July 2014.

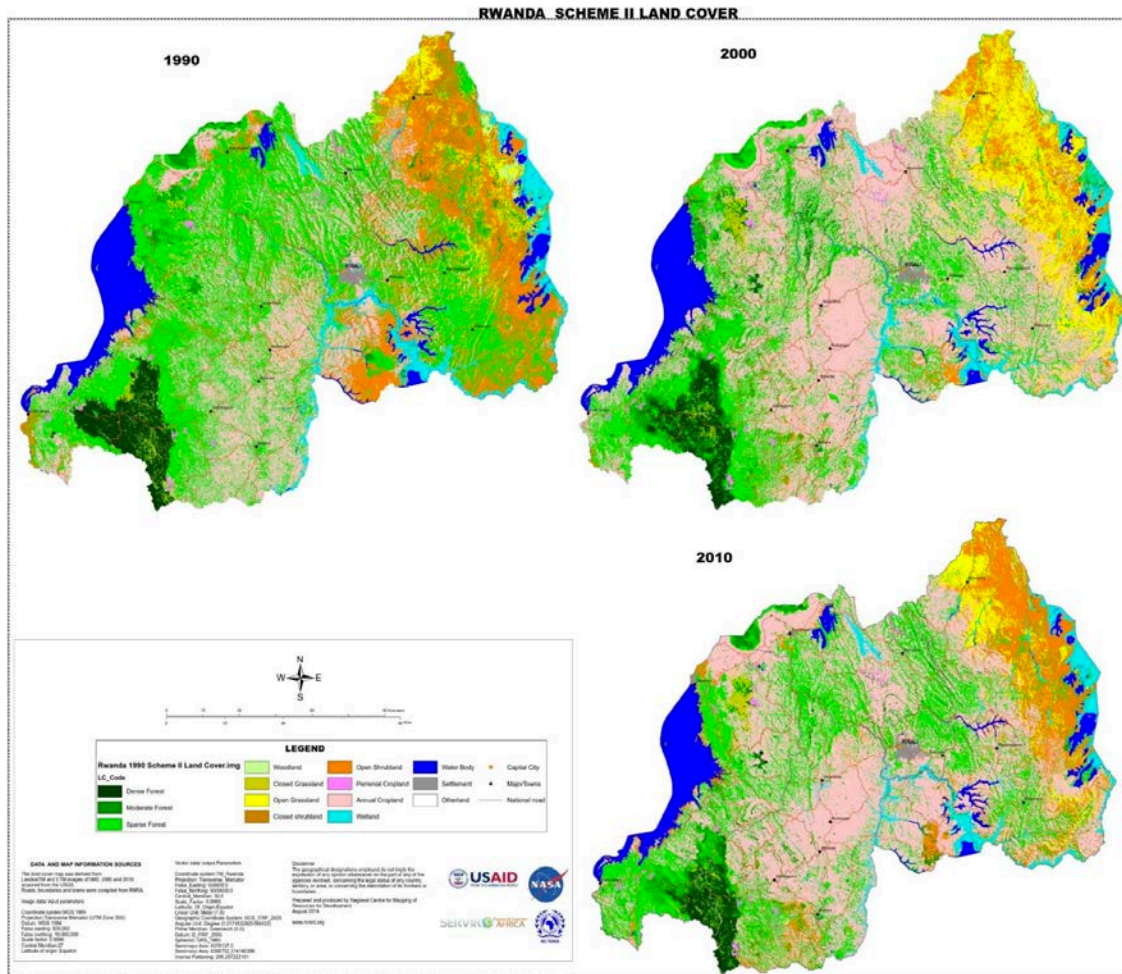
[www.rcmr.org](http://www.rcmr.org)



# Uganda Land Cover Maps



# Rwanda Land Cover Maps



As a direct result of SERVIR land cover effort in Rwanda, the World Bank is now supporting natural capital accounting effort at Rwanda Natural Resources Authority with support from SERVIR.

# So far in past 4 years....



- 40 Land Cover maps for the nine countries have been developed in collaboration with government ministries
- Over 120 people trained on generation of land cover maps
- Online platform for accessing maps developed
- Network with over 50 institutions in the established.
- Countries have been able to develop their own Land Cover maps from training given: Zambia (1990), Ethiopia(2015), Rwanda (2015)

# Product Catalogue



SERVIRcatalog.net / SERVIRcatalogue.net

The screenshot displays the SERVIR Global Product Catalogue website. At the top, the header includes the SERVIR logo and the text "SERVIR GLOBAL | PRODUCT CATALOGUE". A search bar is located in the top right corner. Below the header, a welcome message reads: "Welcome to the SERVIR Global Product Catalogue, a searchable clearinghouse of projects utilizing Earth Observations and NASA Products to help those most in need of tools for climate risk and sustainable forest management." The interface features a "NARROW BY:" sidebar on the left with filters for Region, Theme, Status, Data Source, and Type. The main content area is titled "PRODUCT CATALOGUE" and contains a central map of Africa with a "REGIONS" dropdown menu. To the right of the map is a list of product entries, each with a thumbnail image, title, theme, and region. The entries include: "Africa Biodiversity Mappi...", "Agricultural Monitoring t...", "Clip Zip and Ship Prototy...", "CREST Hydrologic Modeling...", "CREST Streamflow Viewer", and "Eastern Africa Drought an...". At the bottom of the page, there are social media icons for Facebook, Twitter, and Email, and a footer with logos for USAID, NASA, ICIMOD, and SERVIR, along with the text "For more information on the SERVIR program, visit www.servirglobal.net".

- SERVIR is a link between Earth observations and end user decision making in developing countries.
- SERVIR efforts are led by the needs of the region. Land cover mapping is a classic example of SERVIR's efforts to build capacity in the region.
- Presence of SERVIR Hub, a technical institution with regional governmental support, makes the linkage sustainable.