RCMRD Role in Disaster Risk Reduction in Member States

- The SERVIR Africa Regional Disaster Information Management Support Program

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REGIONAL CENTRE FOR MAPPING OF RESOURCES FOR DEVELOPMENT

VISION
To be a premier Centre of Excellence in provision of Geo-information services

MISSION
To promote sustainable development through generation, application and dissemination of Geo-information and allied ICT services and products in the Member States and beyond

SERVICES

APPLICATION
Disaster Management | Health | Energy | Climate | Geology | Agriculture | Ecosystems | Biodiversity | Water
SERVIR as Inter-agency collaboration between NASA and USAID combines:

NASA’s goal 3A: “Study Earth from space to advance scientific understanding and meet societal needs”

and

USAID science and technology aim: “integrating science, technology, and innovation in the practice of development to solve today’s most pressing development challenges around the globe”
SERVIR Project Elements

HUB OPERATIONS

SUPPLY
- Data

Tools
- Webmaps & Webapps

DEMAND
- Outreach

Partnerships
- User needs assessments

Capacity building
The Regional Disaster Information Management Support Program
The Philosophy

- All disasters have a significant geographic aspect in their causation, impacts and response.
- Communities can better prepare for, respond to and recover from disasters if they have a good understanding of the spatial dimension.
- SERVIR, through its partners, is uniquely structured and positioned to bring this critical perspective to assist some of the world's most vulnerable populations.
- SERVIR will assist governments in hub member states in their efforts to protect and assist their most vulnerable communities.
The Strategy

The purpose of SERVIR is to bring advanced technology to the developing world. In some cases, they need a bridge to help them make highest best use of these resources.

- Master the ability to generate useful end products
- Convey that knowledge through training
- Support clients/users ability to meet their needs
Our work (examples)

The conceptual flow chart
Our work (examples)
SERVIR WEB-PORTAL: One stop

The SERVIR Interactive Mapper allows you not only to access and display SERVIR data and functionality, but also to retrieve the same kinds of information from multiple external sources so you can create new services. Using the online Mapper Interface, you can choose specific data sets and information products, display them on a base map, and further manipulate them for analysis.

SERVIR's geospatial Data catalog provides an interface to discovery services you can use to access geospatial data and associated information products and services. The records in our Data Catalog come from SERVIR regional hubs as well as partner organizations that share data with SERVIR.

SERVIR is developing a Map Gallery of user-generated maps and other geospatial products generated by SERVIR's regional hubs. The Map Gallery will allow you to browse SERVIR's maps in a photo album interface. Check back soon for instructions on how to submit your own maps to SERVIR.
Data and Data products

Regional Centre For Mapping of Resources For Development

RCMRD has large repository of Satellite Imagery as well as Data derived from Satellite Imagery
Applications - WATER: Hydrologic Forecasting

- Linking NASA earth observations and Kenya Met Dept data in CREST model of Oklahoma University.

- Calibration in collaboration with Kenya Water Dept.

- The simulations will provide early warning for floods.

- Spatial resolution: 1 km, temporal 3 hrs.

- Also of value to agricultural sector, for monitoring and forecasting soil moisture.

- Developing flood extent tools together with USGS, to increase usefulness.
CREST Implementation – Rwanda’s Sebeya basin
Flood warning ‘intelligent’ tools: The Wireless Sensor Network (WSN)

- Ground-based network of sensors spread out over small geographic areas (3-4 square miles) per node
- Ability to measure environmental conditions (Soil moisture levels, rainfall, seismic activity, streamflow levels)
- Ability to operate autonomously
- Intelligent power management: reduced need for external electricity
- Uses low-cost, low power solar cells in the sensors
- Piloted in Bangladesh (ICIMOD), plans to pilot in Kenya, Rwanda
GIS Flooding Tools

- GFT are an ArcGIS-based extension, written in Python and VB.NET to produce flood inundation patterns given a known discharge.
- Initially developed for ArcGIS 9x but are being ported to ArcGIS 10x.
- Developed Jointly by USGS and SERVIR-Africa.
Flood forecasting and mapping

Precipitation

Flood Potential

Flood Event Mapping

High resolution Model

CREST Stream Model
International Charter Activation

Charter Activation 309, RADARSAT Image

Flood Disaster Rapid Map
Applications - HEALTH: Rift Valley Fever in Africa

Rift Valley Fever Risk Map
(Livestock and human disease transmitted by mosquito)

Uses NDVI, Precipitation and Temperature information

Sensors: MODIS and AVHRR
Applications: other projects

- Drought early warning
- Crop monitoring

- Rapid mapping
- Charter activation
Capacity Building

• Workshops

• Technical training and hands-on experience

• >360 people informed on SERVIR and trained in 2011-2012 in 14 workshops and training courses

• Will include web mapping, data management, geospatial technologies for disaster management, use of the One Stop Portal and training in open source tools in 2012-2015

Target member states 2013-2014: Rwanda, Zambia, Malawi, Namibia, Sudan, South Sudan, Lesotho, Botswana
Capacity building: Support

Capacity Building Programme
5-9 May 2013
Space-based Technology for Disaster Risk Management
Awareness and Training Course in Sudan

Module 2: Pre-Disaster Risk Assessment
C1: Hazard Risk Assessment
C2: Elements at Risk (E.a.R) assessment
C3: Google earth for E.a.R assessment and Mapping
Open source data and Tools: Examples

- **MODIS receiving station (Terrestrial and marine scope)**-Installation in 2013
- **ISERV on board Japanese satellite (HJ II)**-Dedicated to disasters
- **EO 1 (Earth Observing 1)**-terrestrial scope
- **TRMM (Tropical Rainfall Monitoring Mission)**- Microwave radar satellite
- **SPOT VGT (vegetation conditions)**
- **Meteosat second generation**- rainfall estimates (optical satellite)
Thank you

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