RCMRD Role in Disaster Risk Reduction in Member States

The SERVIR Africa Regional Disaster Information Management Support Program

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stars Male

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 – Geographic Information Systems | Surveying & Mapping | Capacity Building: IT, GIS, RS, GPS etc. Remote Sensing | Repair of Surveying Equipment

APPLICATION -

Disaster Management | Health | Energy | Climate Geology | Agriculture Ecosystems | Biodiversity Water

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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"

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SERVIR Project Elements





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 worlds most vulnerable populations.
- SERVIR will assist governments in hub member states in their efforts to protect and assist their most vulnerable communities.

SER



>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

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Map Gallery

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.

> Browse our Maps (coming soon)

Data and Data products





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



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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

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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.





Precipitation Flood forecasting and mapping

Flood Potential



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Flood Event Mapping



High resolution Model

OCT 2008 0000 UTC





CREST Stream Model

International Charter Activation

Charter Activation 309, RADARSAT Image

Flood Disaster Rapid Map



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Applications - HEALTH: Rift Valley Fever in Africa



RVF risk areas, humans and livestock present RVF potential epizootic areas RVF risk areas, humans and livestock absent 2006-07 RVF Outbreak Sites 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



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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

DISASTER RISK REDUCTION CAPACITY DEVELOPMENT I INTER-GOVERNMENTAL AUTHO

Advanced Training on Geographic Info Applications for the Inter-Government





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)

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Thank you

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