

Valuing the Application of Earth Observations to Development: Lessons from the USAID and NASA SERVIR Program

June 28, 2017

Wilson Center, Washington, DC

Jenny Frankel-Reed,
USAID Global Climate Change Office



Agenda



- What is SERVIR – Jenny Frankel-Reed, USAID
- Evaluation results – Isaac Morrison, MSI
- How SERVIR is learning from the results – Kevin Coffey, USAID
- Expert panel
 - Lawrence Friedl, NASA
 - David Nicholson, Mercy Corps
- Open Q&A and discussion

What and Who is SERVIR?



*“Connecting
space to village”*

A joint initiative of USAID and NASA that partners with regional technical institutions around the world to get Earth observation information into the hands of decision-makers to improve development outcomes.



- Societal benefit from space
- 20+ satellites, data free and open
- Major research portfolio
- Limited internationally



USAID
FROM THE AMERICAN PEOPLE

- Poverty reduction and resilience
- Working on data-dependent issues in data-scarce places
- International field presence

Regional hubs



ICIMOD



Hub consortium partners

Spatial Informatics Group



Private sector partners: Google  esri  DigitalGlobe

Research collaborators: NASA Jet Propulsion Lab; New Mexico State Univ.; Univ. of California, Santa Barbara; Univ. of Maryland; South Dakota State Univ., GISc; U.S. Forest Service, RM Research Station; Brigham Young Univ.; NASA Goddard Space Flight Center; University of Houston; Univ. of Oklahoma; Columbia Univ., IRI; Johns Hopkins Univ.; NASA Marshall Space Flight Center

The SERVIR Hub Network



**SERVIR-Science
Coordination Office
MSFC**

**USAID-Washington
NASA/Headquarters**



**SERVIR-Himalaya
ICIMOD**

**SERVIR-Mekong
ADPC**

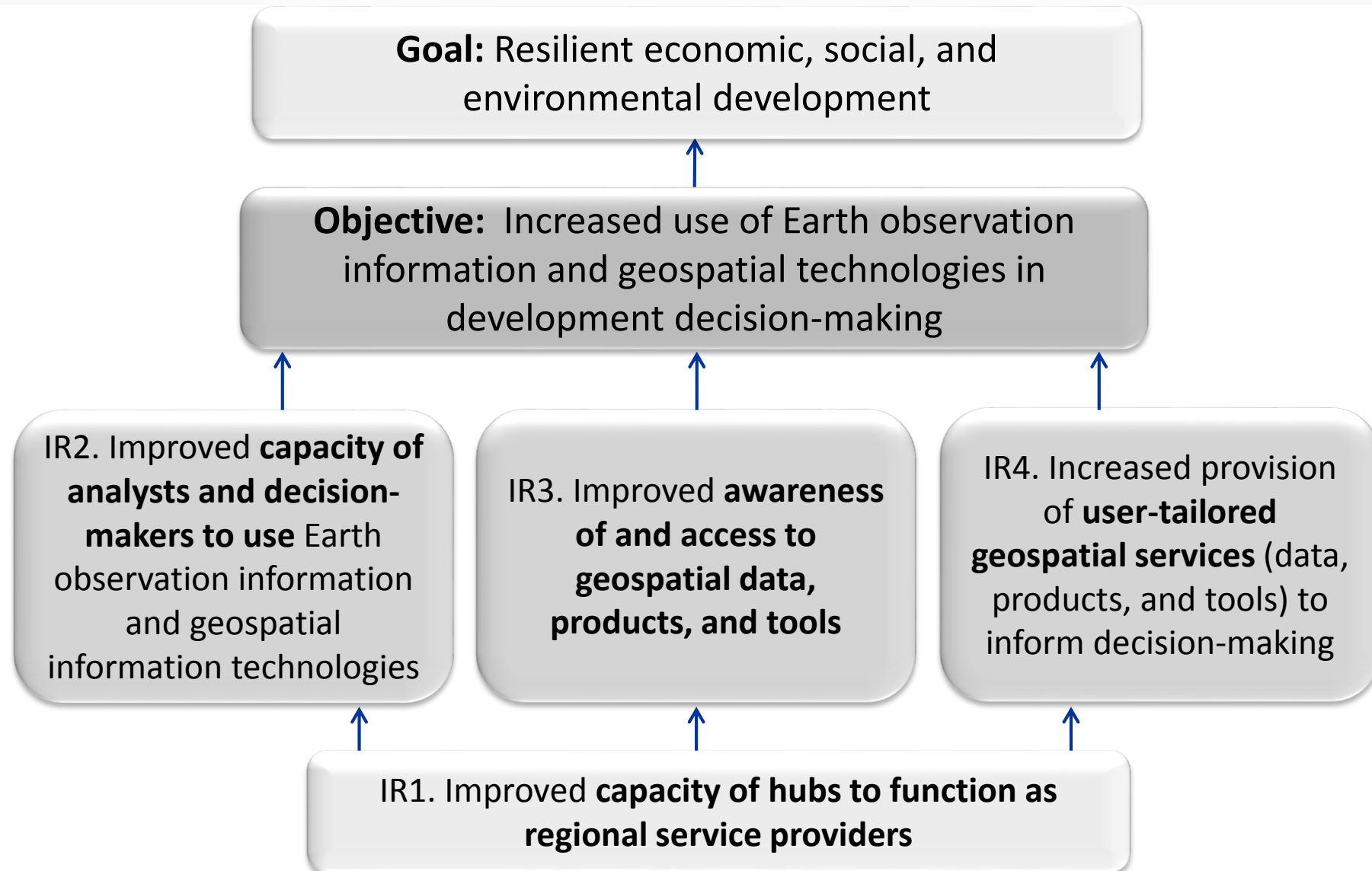
**SERVIR-Amazonia
(TBD)**

**SERVIR-West Africa
AGRHYMET**

**SERVIR-Eastern &
Southern Africa
RCMRD**

-  **SERVIR Focus Countries**
-  **Additional Countries Reached**

SERVIR Theory of Change





SERVIR

SERVIR connects space to village by making geospatial information useful to developing countries. SERVIR is a joint development initiative of NASA and USAID, working in partnership with leading regional organizations around the globe.

EXPANDING AROUND THE GLOBE

47

countries directly served by SERVIR products, applications, or trainings

28

satellites and sensor data used by SERVIR

62

countries benefiting from SERVIR cooperation

PRODUCTS, TOOLS, AND SERVICES

73

climate change adaptation and mitigation products developed



1.5M

maps produced interactively on the SERVIR web portal



By the Numbers Thru:
2016

www.servirglobal.net

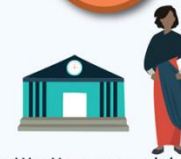
TRAINING AND INFORMATION SHARING

3517



people trained to use tools and information

259



institutions worldwide with improved capacity to address climate change issues

403



decision-makers and scientists participating in technical exchanges

CONNECTING MORE SCIENCE

5

United States Government science expertise connections (2016)







27

SERVIR Applied Sciences Team projects (2016)





-  Agriculture and Food Security
-  Water and Water-Related Disasters
-  Land Cover, Land Use Change and Ecosystems
-  Weather and Climate

Hub Status and Key Services



RCMRD

●●●●●●●●●● (years)



Regional Center for Mapping Resources for Development (RCMRD), Kenya

- Drought monitoring
- Frost forecasting
- Streamflow and flood forecasting
- Land cover mapping
- Vulnerability assessment

ICIMOD

●●●●●●●●●●



International Center for Integrated Mountain Development (ICIMOD), Nepal

- Agriculture advisory
- Afghanistan irrigation info portal
- Drought monitoring and EWS
- Forest and land cover monitoring
- Climate vulnerability assessment for forest ecosystems

adpc

●●●●●

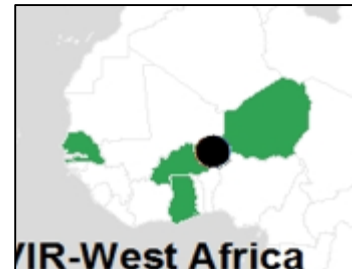


Asian Disaster Preparedness Center (ADPC), Thailand

- Surface water and dam inundation mapping
- Riverine flood monitoring and forecasting
- Regional land cover monitoring
- Agriculture drought and crop productivity



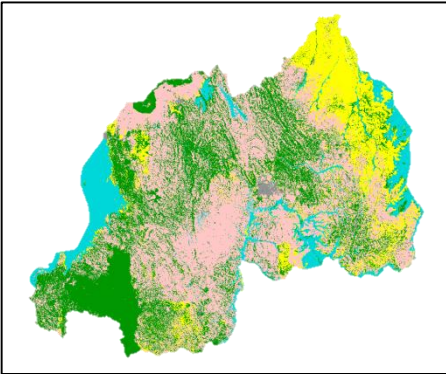
●●●●●



AGRHYMET Regional Center, Niger

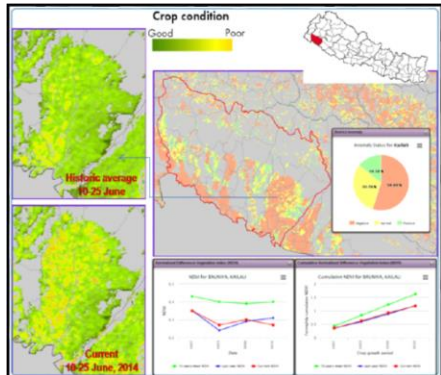
- Locust monitoring
- Ephemeral water body mapping
- Groundwater monitoring
- Charcoal tracking

Examples of Services



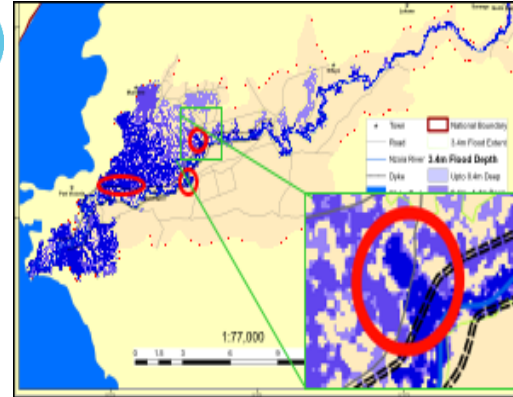
Land Cover Maps to Support Emissions Estimations

- Rwanda, Tanzania, Zambia, and Nepal are using maps to implement actions to reduce or remove forest carbon emissions and protect forests.



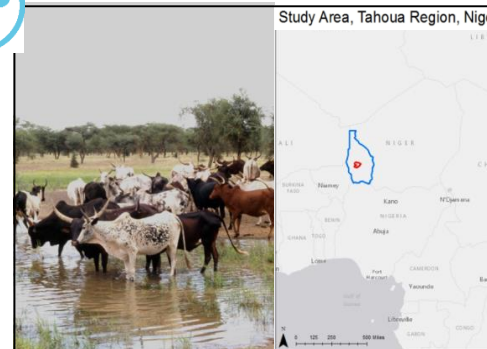
Satellite-Based Agriculture Drought Warning System

- Actively used by World Food Program to distribute food aid in western Nepal to avert food shortages.



Flood Mapping Tool in Eastern & Southern Africa

- High-accuracy flood level scenario maps used by World Bank to prioritize repairs of flood protection dikes in Kenya.



Ephemeral Water Body Identification

- Rapidly monitoring small waterbodies, enabling agriculture extension to provide improved information to herders and farmers

International Research Collaborations (2016-2019)



West Africa teams

Principal Investigator



Michael Wimberly
GISc Center of Excellence,
South Dakota State
University



Hub Co-I



Foster
Mensah,
CERSGIS
(Accra)



Augusto Getirana
NASA Goddard
Space Flight Center



Alessandra Giannini
IRI, Columbia
University



Niall Hanan
New Mexico State
University



Abdou Ali,
AGRHYMET



Amadou
Dieye, CSE
(Dakar)

Eastern & Southern Africa teams

Principal Investigator



Sean Healey
US Forest Service, Rocky
Mountain Research
Station



Yang Hong
University of
Oklahoma, Norman



Shrad Shukla
University of California,
Santa Barbara



Inbal Becker-Reshef
University of Maryland,
College Park



Hub Co-I



Edward Ouko



Faith Mitheu



Denis Macharia



Lillian Ndungu

International Research Collaborations (2016-2019)



Mekong teams

Principal Investigator



Stephanie Granger
NASA Jet Propulsion
Laboratory



John Bolten
NASA Goddard
Space Flight Center



Hyongki Lee
University of
Houston



Peter Potapov
University of Maryland,
College Park



Hub Co-I



Rishi Dutta,
Susantha
Jayasinghe



Chinaporn 'Pin'
Meechaiya,
Jaap
Schellekens
(SEI)



Senaka Basnayake



Nguyen
Hanh Quyen,
David Saah
(SIG)



Himalaya teams

Principal Investigator



Ben Zaitchik
Johns Hopkins
University



Cédric David
NASA Jet Propulsion
Laboratory



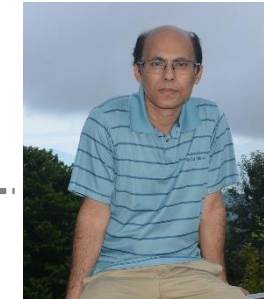
Jim Nelson
Brigham Young
University



Patrick Gatlin
NASA Marshall Space
Flight Center



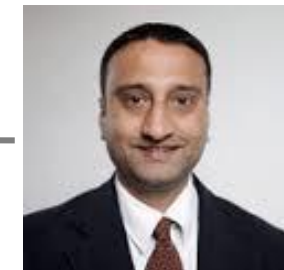
Hub Co-I



Mir Martin



Deo Raj Gurung



Bhupesh
Adhikary

- Approaching our 10th year of SERVIR, we wanted to learn and adapt.
- Amidst increasing awareness and demand, we wanted to share SERVIR's experience with a broader community.
- Many dimensions of value were apparent, but we lacked an independent, in-depth analysis.
- So we dedicated three years to answer three questions...