SERVIR_RCMRD_36_03-17_HR.qxp_Layout 1 3/25/15 2:20 PM Page 1

USAID FROM THE AMERICAN PEOPLE

SERVIR GLOBAL

MEETING THE DEVELOPMENT CHALLENGE
SERVIR IN EASTERN AND SOUTHERN AFRICA

SERVIR in eastern and southern Africa is a joint development initiative of NASA and USAID, working in partnership with the Regional Centre for Mapping of Resources for Development (RCMRD), based in Nairobi, Kenya. RCMRD collaborates with member states across eastern and southern Africa to promote sustainable development.

Connecting information from space to village, NASA, USAID, and SERVIR-Eastern and Southern Africa use Earth observation science and geospatial technology to support development decision-making. RCMRD responds to the needs of developing nations as they adapt to changes in the region, build resilience to climate change, and strive to secure food, water, forests, and energy for their citizens.

THE EASTERN AND SOUTHERN AFRICA REGIONS

Eastern and southern Africa are regions with great develvntal challenges. Already intense floods and droughts are likely to worsen with global climate change. In combination with rising temperatures and sea level rise, climate stresses threaten health, agriculture, and biodiversity. In addition, these regions suffer from high levels of poverty and environmental degradation, especially deforestation and desertification. To help secure Africa's future, these regions must improve natural resources management and development decision-making to safeguard their environment and economies. RCMRD works in concert with its member states to help them achieve these goals.

SERVIR

The CREST model runs on all iOS and Android devices allowing access to the vast majority of internet users in remote areas.

NENA TERRELL, USAID

BUILDING TECHNICAL CAPACITY TO USE EARTH OBSERVATION

RCMRD promotes sustainable development through SERVIR-Eastern and Southern Africa by using Earth observation information from satellites to support problem-solving applications for natural resources management, climate and disaster risk reduction, and low-emissions development. SERVIR combines NASA satellite observations and predictive models, along with other geographic information from satellites and field-based sensors for improved scientific knowledge and environmental decision-making in Africa. SERVIR-Eastern and Southern Africa builds local capacity by working together with African scientists, analysts, and decision-makers to produce, analyze, and use Earth observations and geospatial technology.

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SERVIR_RCMRD_36_03-17_HR.qxp_Layout 1 3/25/15 2:20 PM Page 2

SERVIR-EASTERN AND SOUTHERN AFRICA IN ACTION

Land Cover Mapping for Greenhouse Gas Emissions Inventory

As human activities contribute to greenhouse gases (GHG), it's essential to track changes in forests, ground cover, and land use. Forests remain an important safeguard against the impact of GHG, since deforestation accounts for 17% of GHG in the atmosphere. The United Nations, the US Environmental Protection Agency, and SERVIR are helping six African nations develop the ability to analyze the impact of land cover change on GHG emissions. SERVIR-Eastern and Southern Africa provides training for national GHG teams and also generates baseline data, using Landsat satellite imagery and land cover maps for 2000 and 2010. SERVIR is collecting ancillary data from the countries to classify the satellite imagery into land cover maps.

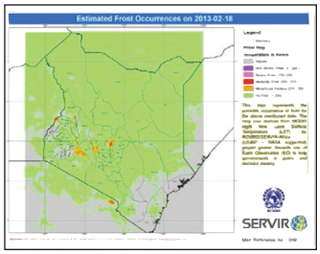
Ecosystem and Biodiversity Mapping

East Africa is a globally important center for biodiversity. As climate change affects the region's animals and plants, it could also threaten its ecosystems, national parks, and tourism revenues. National Museums of Kenya collaborated with SERVIR-Eastern and Southern Africa to incorporate ground and satellite data to develop maps for selected flora and fauna as a baseline for assessing the potential impact of climate change on their ecosystems. The biodiversity visualization tool maps the region's spatial distribution of plants, fish, reptiles, and birds to produce a web-based biodiversity atlas and integrate future climate projections to help protect ecosystems and manage future land use. Efforts are also underway to expand this project to neighboring countries.

RCMRD

Frost Monitoring and Forecasting

An early frost can be devastating to farmers. In East Africa, for example, frost has caused millions of dollars in damage to crops such as tea and coffee. With advance warning, farmers can pick early to protect their harvest. Kenya's Ministry of Agriculture asked SERVIR-Eastern and Southern Africa to build their capacity to identify frost-impacted areas and measure ground temperatures to determine, within a 72-hour window, where frost is likely to occur. SERVIR's Frost Monitoring and Forecasting application uses satellite data to assess frost-damaged areas in Africa.



SERVIR

SERVIR's Frost Monitoring and Forecasting application showing areas of potential frost in Kenya for February 18, 2013.

Flood Forecasting

SERVIR-Eastern and Southern Africa uses satellite rainfall data in near real-time to monitor water flow in streams and rivers in eastern Africa. Using a hydrologic model called CREST (Coupled Routing and Excess Storage), SERVIR provides river-flow information to local hydrologists and supports advanced planning for vulnerable areas. CREST model output allows users to visualize the extent of flooding in a region, enabling SERVIR to send government officials a daily email update with modeled estimates of streamflow. In eastern Africa, CREST covers watersheds with data from from 850 stream gauge locations and enables water managers at Kenya's Department of Water Resources to assess imminent and near-term likelihood of flooding at selected locations. At the request of governments in Rwanda and Namibia, SERVIR-Eastern and Southern Africa is expanding CREST support to those countries.

SERVIR strengthens the ability of governments and other development stakeholders to incorporate Earth observations and geospatial technologies to respond to natural disasters, improve food security, safeguard human health, manage water and natural resources. Improved management of natural resources also helps to identify opportunities to improve economic growth while lowering greenhouse gas emissions and building resilience to climate change.

FIND OUT MORE AT
www.servirglobal.net