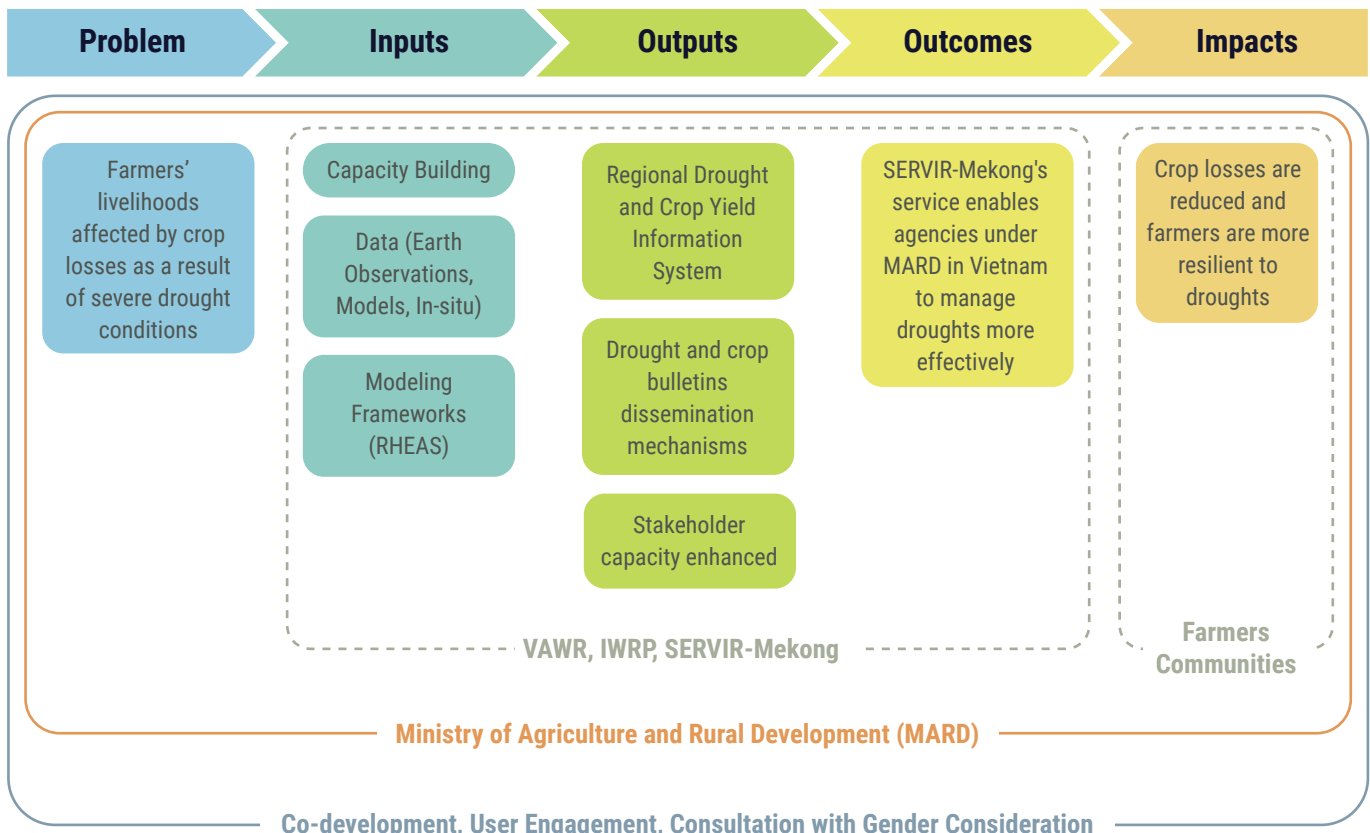# ENHANCING DROUGHT RESILIENCE AND CROP YIELD SECURITY IN VIETNAM

During 2015-2016, Vietnam experienced its worst drought in 90 years due to the El Niño weather event, where 52 out of the 63 provinces have been affected by drought (Source: FAO, 23 August 2016). A total of 2 million people were affected and the total cost for recovery needs from October 2016 until 2020 is estimated at US$1,221 million
(Source: UNICEF, 15 August 2016; Government of Vietnam/UNCT/OCHA, 21 Oct 2016).


Scientist inspecting the sign of severe drought in the rice field in Ba Tri district, Ben Tre
(Photo Credit: Leo Sebastian/CCAFS SEA)

Since Vietnam is heavily reliant on crops for its economy and people's livelihoods, lack of adequate planning for droughts can cause a significant drop in farm production, resulting in less income for farmers and less food for people. To address this challenge, SERVIR-Mekong worked with Vietnam's Ministry of Agriculture and Rural Development (MARD) to develop a geospatial tool which enables agencies under MARD to prepare for and respond to droughts more effectively, as shown in the following diagram:

Problem	Inputs	Outputs	Outcomes	Impacts

Problem: Farmers' livelihoods affected by crop losses as a result of severe drought conditions

Inputs:
- Capacity Building
- Data (Earth Observations, Models, In-situ)
- Modeling Frameworks (RHEAS)

Outputs:
- Regional Drought and Crop Yield Information System
- Drought and crop bulletins dissemination mechanisms
- Stakeholder capacity enhanced

Outcomes: SERVIR-Mekong's service enables agencies under MARD in Vietnam to manage droughts more effectively

Impacts: Crop losses are reduced and farmers are more resilient to droughts

VAWR, IWRP, SERVIR-Mekong

Farmers Communities

Ministry of Agriculture and Rural Developmt (MARD)

Co-development, User Engagement, Consultation with Gender Consideration

SERVIR-Mekong co-developed the Regional Drought and Crop Yield Information System (RDCYIS) with the Vietnam Academy of Water Resources (VAWR) with technical support from NASA's Jet Propulsion Laboratory. This integrated system improves the ability of users to access drought monitoring and forecasting information as well as crop yield estimations in order to prepare for and respond to drought conditions in the Lower Mekong Region. The Water Resource Directorate disseminates forecast information to drought affected provinces based on the drought forecast bulletin submitted by the Vietnam Academy of Water Resource (VAWR) and Institute of Water Resource Planning (IWRP). The RDCYIS improves VAWR's and IWRP's capacity to forecast and monitor drought conditions to inform better decision-making by the Ministry of Agriculture and Rural Development.
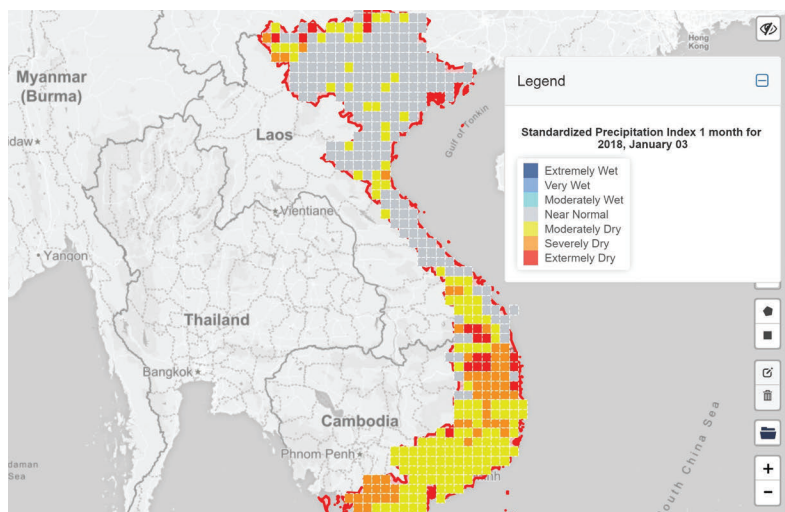
This map shows a one-month Standardized Precipitation Index (SPI-1 month) over Vietnam using the Regional Drought and Crop Yield Information System. This system is capable of providing the various drought indices as well as other parameters that are needed for agricultural planning such as water balance, energy balance and soil parameters. It can also provide crop yield estimates for maize and rice.

REGIONAL DROUGHT AND CROP YIELD INFORMATION SYSTEM APPLICATIONS

Improving the operational, technological, and institutional capabilities to prepare for and respond to droughts

Assisting local governments and the agricultural sector with seasonal drought forecasting and in implementing short and long-term mitigation measures during and in advance of droughts

Providing crop yield estimation to make better decisions on seasonal cropping

This geospatial technology supports water management and agricultural planning agencies in Vietnam to manage drought more effectively. Such interventions will enhance the Vietnam economy and community livelihoods when droughts strike.

To learn more about SERVIR-Mekong and access available tools visit
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