Advancing Flash Flood Preparedness in Southeast Asia through an Adaptive Geospatial Warning System
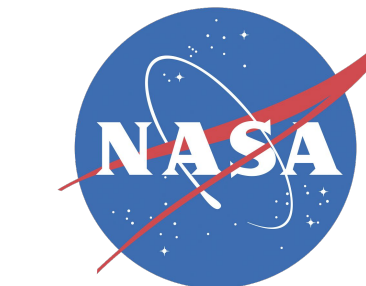
USAID FROM THE AMERICAN PEOPLE — **NASA** — **SERVIR SOUTHEAST ASIA**

SERVIR SEA is enhancing flash flood early warning systems across Southeast Asia with a innovative and adaptive geospatial-based framework. In collaboration with the Mekong River Commission and the ASEAN AHA Centre, this initiative strengthens flood modeling for the Mekong region and offers a flexible solution for warnings across the entire region. *The goal: protect communities, save lives, and empower decision-makers to prepare for and respond effectively to flash floods.*

Partners & Collaborators

- ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre)
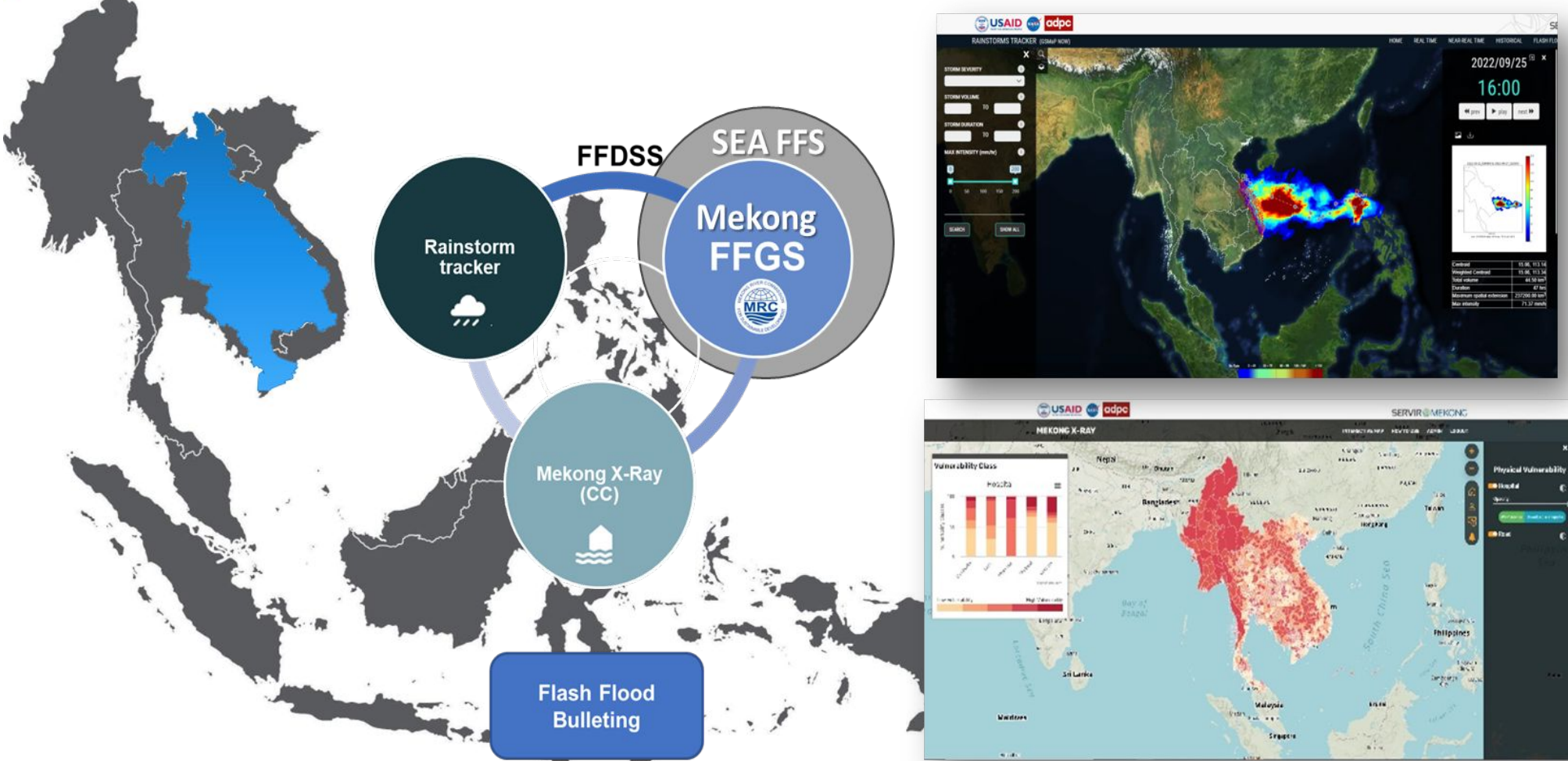- Mekong River Commission (MRC)

Background

Southeast Asia is highly prone to flash floods due to its tropical climate, heavy monsoon rains, and varied landscape. In response to the increasing need for anticipatory actions during flash floods.

SERVIR SEA, in partner with regional organizations, is developing a flexible geospatial Flash Flood Warning System for Southeast Asia. This adaptive system enhances the capabilities of the existing flash flood system for the Mekong area while providing a modeling framework for the region.

The methodology integrates advanced geospatial technologies for analyzing the severity of extreme rainfall data and evaluating the exposure of social, economic, and physical variables.

Flash flood modelling Framework

Monitoring and analysis

Real-time Rainstorm tracker system

MRC Flash Flood Guidance System

Flash flood analysis

Exposure analysis using Mekong X-Ray

Warning and communication
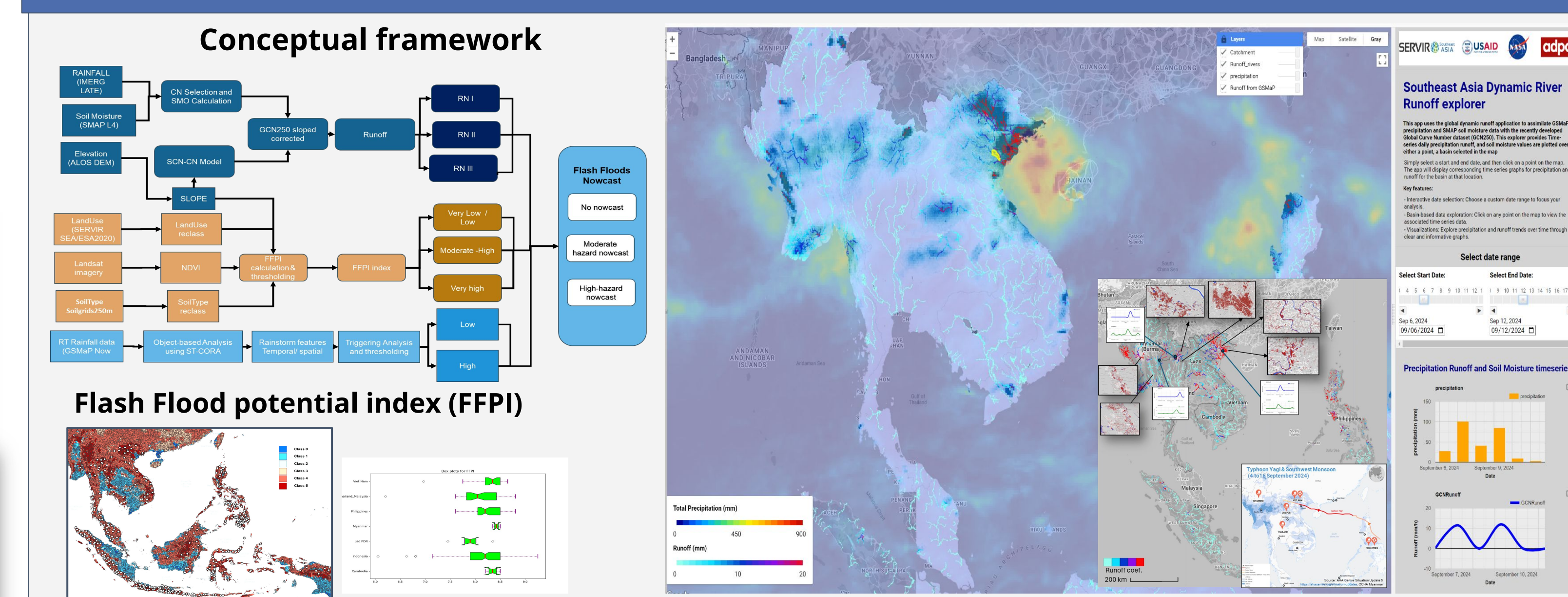
MRC Outlook FFGS bulletin

Situational updates from multiple partners

Social Media reports

Source: The Mekong Flood and Drought Forecast TV on 9 September 2024 (facebook)

Operational workflow of the enhanced MRC Flash Flood Guidance System for real-time monitoring and warning over the Mekong Basin

Development of Flash Flood Warning system for Southeast Asia

Conceptual framework

Flash Flood potential index (FFPI)

With the SEA Flash Flood Warning System, SERVIR SEA aims to enhance the preparedness and response capabilities for flash floods in ASEAN countries, including Indonesia and the Philippines.

Outcomes & Impacts:

- **June 2024 season** Mekong River Commission (MRC) launched the updated FFGS incorporated with the Rainstorm tracker and Mekong X Ray for the flood season in the Mekong Basin.
- **+200 people** from Local and national organization in Countries Laos, Cambodia, Vietnam, Thailand*, regularly receive flash flood bulletins from MRC supported by SERVIR SEA.
- SERVIR SEA partnered with the ASEAN AHA Centre to **expand the Flash flood warning system for Southeast Asia** based on the Rainstorm tracker system

Next Steps:

1. **Trigger Analysis:** Analyze rainstorm features derived from the Rainstorm Tracker.
2. **System Operationalization:** Release the beta version of the flash flood warning system.
3. **Performance Evaluation**: Assess the flash flood system's effectiveness using the AHA Disaster Database (ADINET).
4. **Capacity Building:** Capacity building for ASEAN disaster authorities on utilizing the SEA Flash Flood tool for preparedness and response

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SERVIR Southeast Asia

MEKONG RIVER COMMISSION FOR SUSTAINABLE DEVELOPMENT — AHA CENTRE ONE ASEAN ONE RESPONSE — Alliance Bioversity & CIAT — ICRISAT INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPIC — ICIMOD — adpc

https://rainstorms-servir.adpc.net/   https://FFGS.mrcmekong.org   SEA_runoffapp