

Mekong River bursts its banks and floods downtown Nong Khai

SUNDAY, SEPTEMBER 15, 2024



Floodwaters expected to reach Cambodia and Vietnam on Sept 17 and 19

Typhoon Yagi claims 74 lives in Myanmar, causes flooding in Thailand, Laos

The Global New Light of Myanmar reported on September 15 that as of September 13 evening, flooding and landslides triggered Typhoon Yagi in the country had left 74 and 89 others missing.

Lao capital issues urgent flood warning

The Vientiane Administration Office has issued an urgent warning in response to rising water levels in the Mekong River, which poses a risk of breaching levees and causing localised flooding in low-lying areas and potentially widespread inundation in the Lao capital city.

September 13, 2024 at 14:48:23

Flood alert issued as rising Mekong River floods Chiang Khan villages

FRIDAY, SEPTEMBER 13, 2024



Mekong starts flooding communities in Bueng Kan

SUNDAY, SEPTEMBER 15, 2024



Mekong River overflows, submerging economic hub in Nong Khai

By Pattaya Mail September 15, 2024

1435

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The overflow from the Mekong has inundated the heart of the city, particularly the key economic areas of Rim Khong Road, Meechai Road, and Prajak Sillapakom Road.

Story Behind Mekong River

The financial losses totaling USD 60-70 million for the Lower Mekong Basin area underscore the economic strain caused by natural disasters fueled by tropical storms including **floods**.

In Cambodia, over 84,000 homes were affected, and in Lao PDR, over 621,000 people were affected by flooding, indicating a critical need for improved flood management and disaster response strategies in these areas.

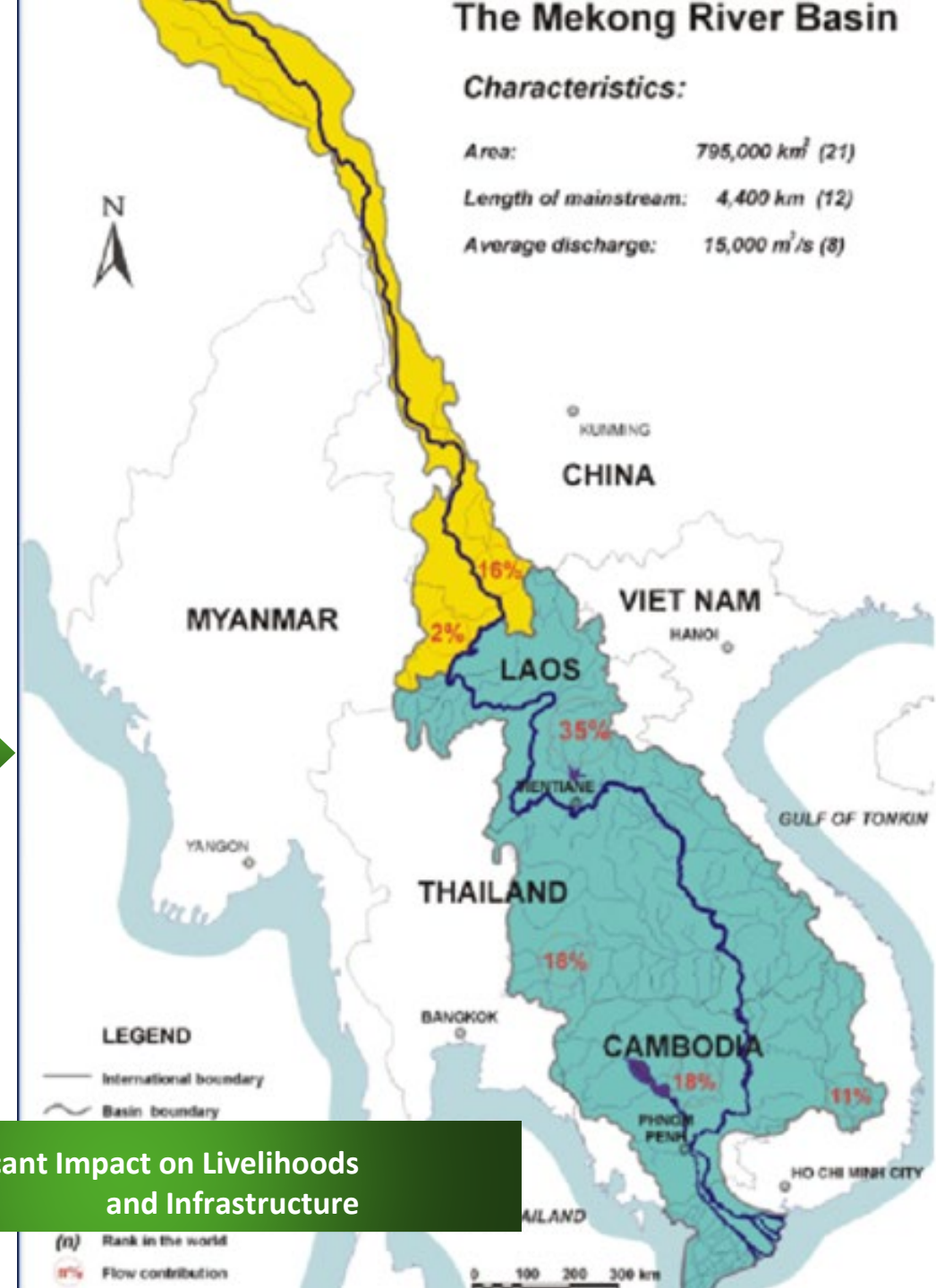
Economic Burden of Natural Disasters

Causalities (2019)

Country	Affected People	Deaths	Injured
Cambodia	180,530	30	8
Lao PDR	621,965	32	N/A
Thailand	22,220	3	N/A
Vietnam	35	20	N/A

Real-time data driven insight & analytics

Significant Impact on Livelihoods and Infrastructure



..Those communities that were unprepared have suffered the most (MRC, 2019)



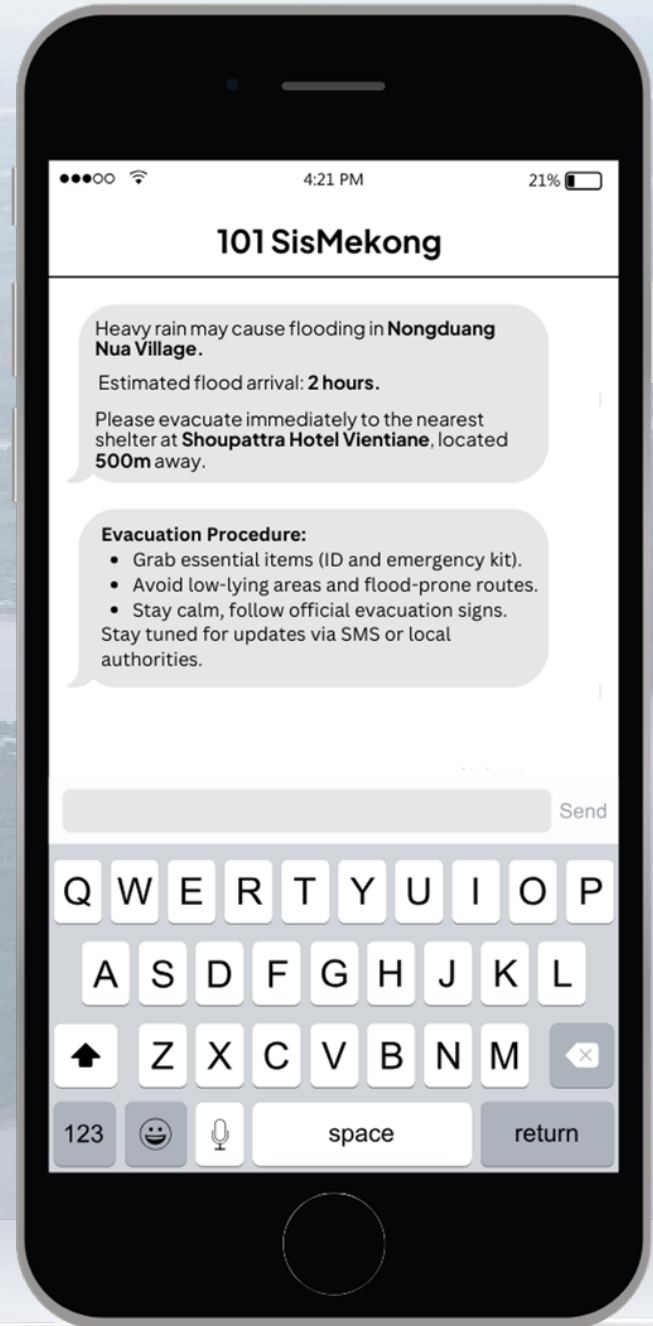
<p>Outcome 4.1 Better informed and prepared basin communities against changing river conditions, and more frequent and severe floods and droughts</p>	<p>Outcome 4.2 Better disaster management and adaptation to water resources development and climate risks</p>
<p>4.1.1 A core river monitoring network 4.1.2 Integrated data and information systems 4.1.3 Compatible Decision Support Systems in line with reinvigorated data, modelling, forecasting, and communication capabilities 4.1.4 Integrated basin-wide flood and drought forecasting and early warning 4.1.5 Joint State of Basin Report</p>	<p>4.2.1 Coordinated water infrastructure operations 4.2.2 Climate change adaptation, flood and drought management mainstreamed at national levels</p>

Challenges in Existing Solution

	Platform	Method	Challenges
1	Flash Floods Guidance System (FFGS)	<ul style="list-style-type: none">• Provides flash flood guidance information twice per day• Information is shared with the Member Countries• Published on the MRC Flood Forecasting Website.	<ul style="list-style-type: none">• Cannot individually approach a person unless they open the website or read the news
2	Near Real-Time Monitoring (HYCOS)	<ul style="list-style-type: none">• Illustrated using interactive graphs and maps.• Mainstreamed through news agencies and social media.	<ul style="list-style-type: none">• Cannot individually approach a person unless they open the website or reading the news• Might be challenging to receive the information for those whose lacking knowledge in reading graphs and maps
3	The Mekong Flood Forecasting and Early Warning System (MFFS)	<ul style="list-style-type: none">• Generate critical forecasts for water levels and streamflow for Laos• Release forecasting bulletins to present the seasonal and weekly situation report, in addition to flash flood	<ul style="list-style-type: none">• Securing sustainable funding for technical advancements• Unstable system maintenance and scalability• Advance modelling skill and framework

SisMekong

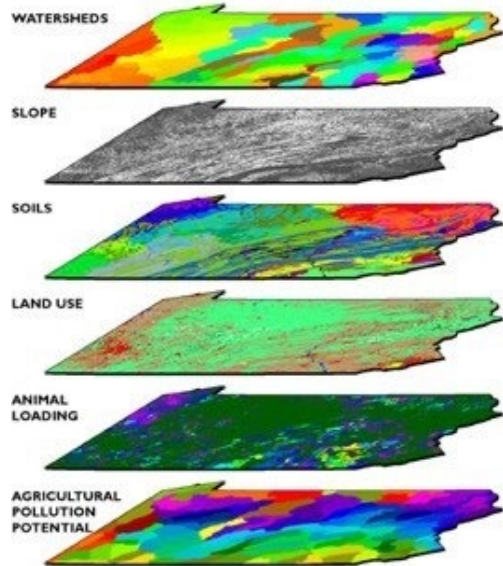
“Smart Information System for Mekong”



Indira Pradnyaswari
Naufal Prawironegoro
Nadya Putri Arisni

SisMekong - An Innovative Digital Early Warning System

ASPECT PHYSICAL and NON PHYSICAL



Geology, topography, climatology, morphology, hydrology
+
population, economy, environment, management

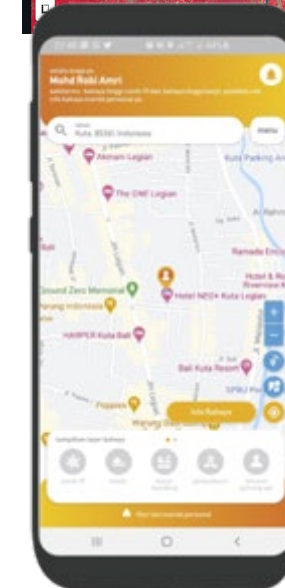
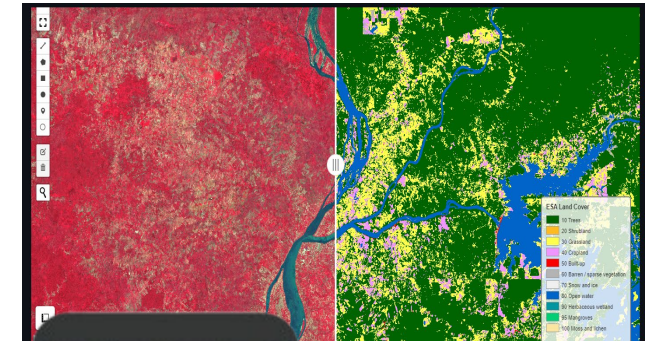
MAPPING POTENTIAL RISK LOCATION BASED ON THE HISTORICAL DATA AND MODEL RESULT



Region around Mekong River

Powered by Llama Model
Generative AI for
Personalization

EARLY INFORMATION Flood RISK DISASTER 90% user reach



Reach by
Personalized
message *via*
SMS and
mobile apps

Impact Measurement

Key Metrics to Measure

- **Lead Time:** Time between the flood warning and the actual flood event.
- **Evacuation Success Rate:** % of the population that successfully evacuated after warnings.
- **Reduction in Casualties:** Comparison of flood-related deaths and injuries before and after the implementation of the system.
- **Economic Losses:** Comparison of property damage, infrastructure damage, and economic losses before and after system deployment.
- **Response Time of Emergency Services:** Time taken by emergency services to act after receiving an alert.
- **System Accuracy:** Number of false positives/negatives in flood predictions.
- **Community Preparedness:** Public knowledge and response behavior after receiving warnings (measured through surveys).

Timeline

Oct-Dec

- Initial Research and Adaptation
- Stakeholder Engagement and Needs Assessment
- Infrastructure Assessment

Jan-Mar

- Technology Procurement and Partnerships
- System Design and Customization
- Testing and Calibration

Apr-Jun

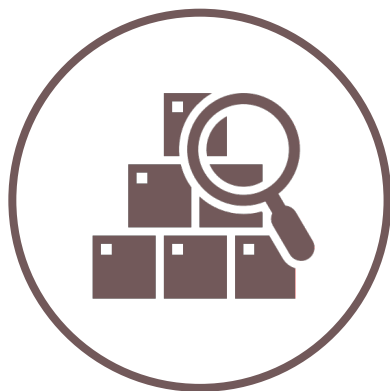
- Data Integration and Training
- Public Awareness Campaign
- Full-Scale System Deployment

Jul-Sept

- Emergency Response Coordination
- Monitoring and Evaluation
- Review and Impact Analysis

Way Forward for Mekong River Area

To improve the implementation of digital early warning flood system, key advancements should focus on several aspects:



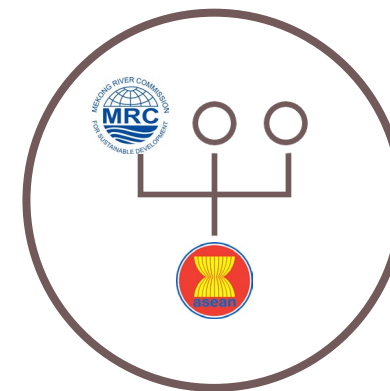
Strengthening Transboundary Policymaking

- Create **regulations** to promote sustainable product and service to back faster
- **Warning system**, do mitigation of risk in flood



High Demand Potential for Customized Product

- Support for LMB Community in **knowledge dissemination** about flood prevention and mitigation.
- Create small groups to support others on **flood-related education**



Additional Cross Selling Opportunities

- **Identify and involve** all relevant stakeholders
- **Secure funding and technical assistance** from regional organizations
- Use existing regional platforms to **facilitate dialogue and best practices**



Protecting Mekong communities from devastating floods requires urgent action—implementing early warning systems and sustainable river management can save lives.

Save Mekong, Save the People. Starts now, adapt with SisMekong.