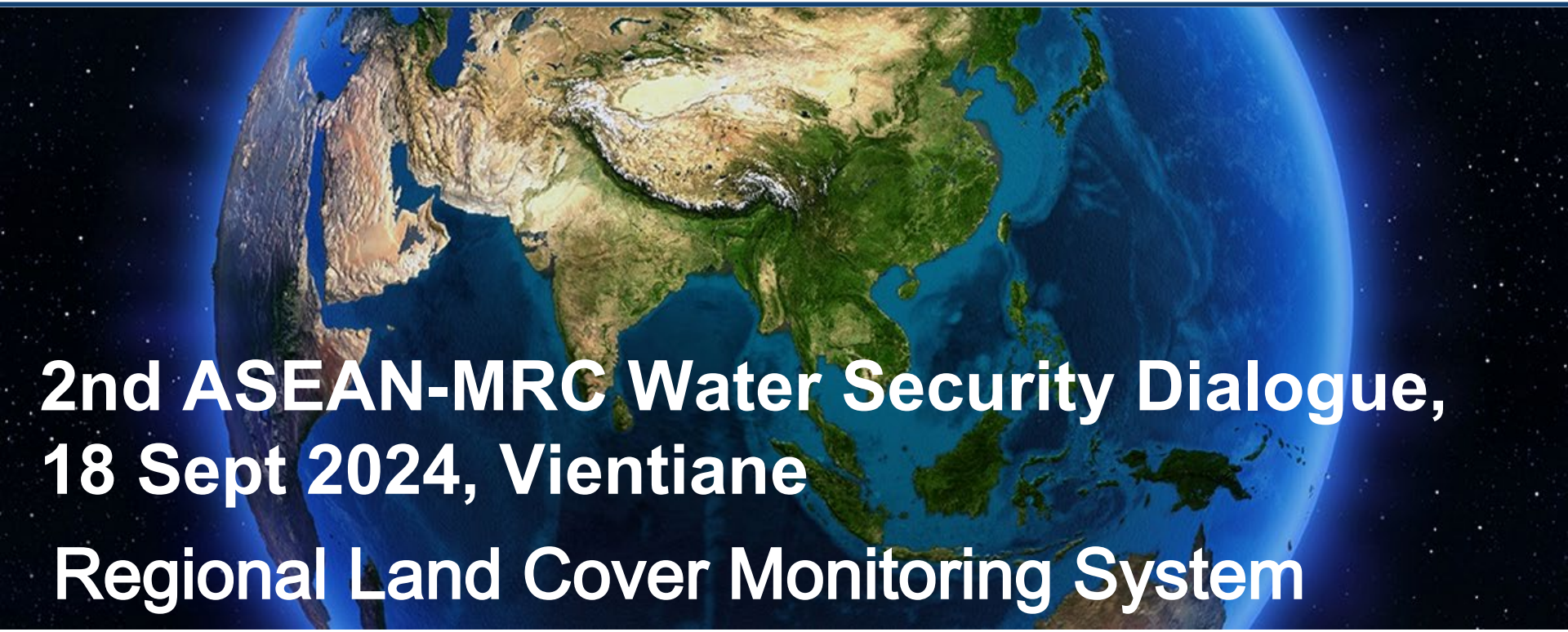
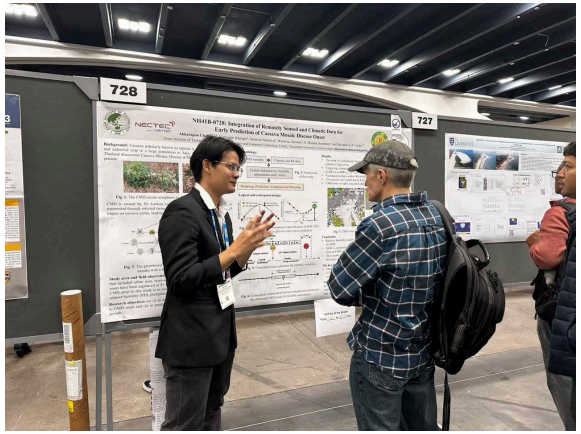


2nd ASEAN-MRC Water Security Dialogue, 18 Sept 2024, Vientiane

Regional Land Cover Monitoring System

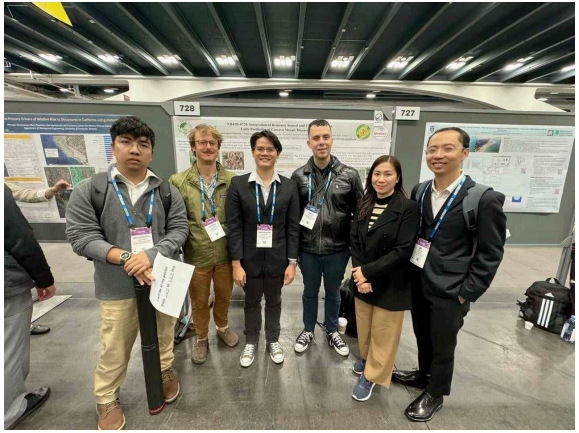
Presented by: Akkarapon Chaiyana (NexGen 2022)
Asian Disaster Preparedness Center (ADPC)
Email: akkarapon.chaiyana@gmail.com


728
727


NexGen 2023


UCLA


711
710
AGU23
USGS


728
727


STIMSON
Using Remote Sensing to Monitor the Mekong River

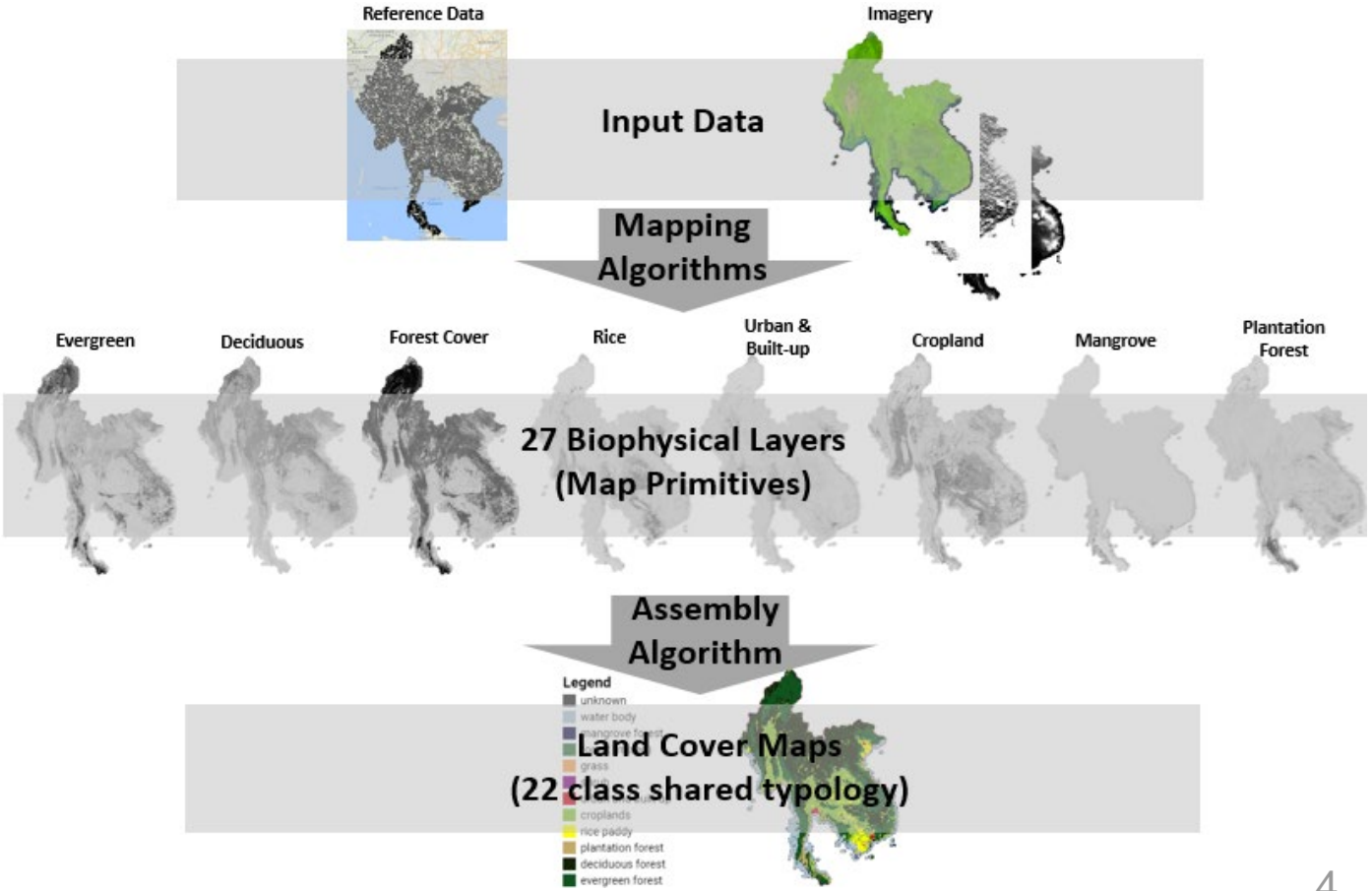
Geospatial Needs Assessment

With government, institution, and university partners

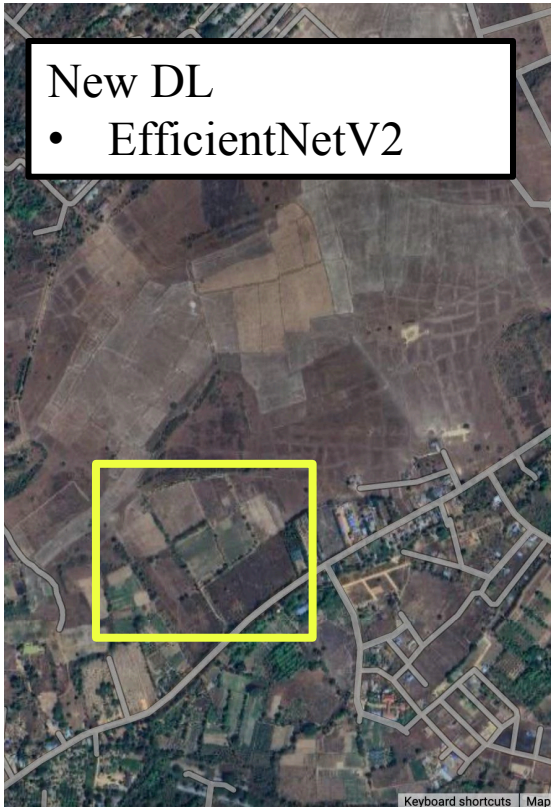
Design Criteria:

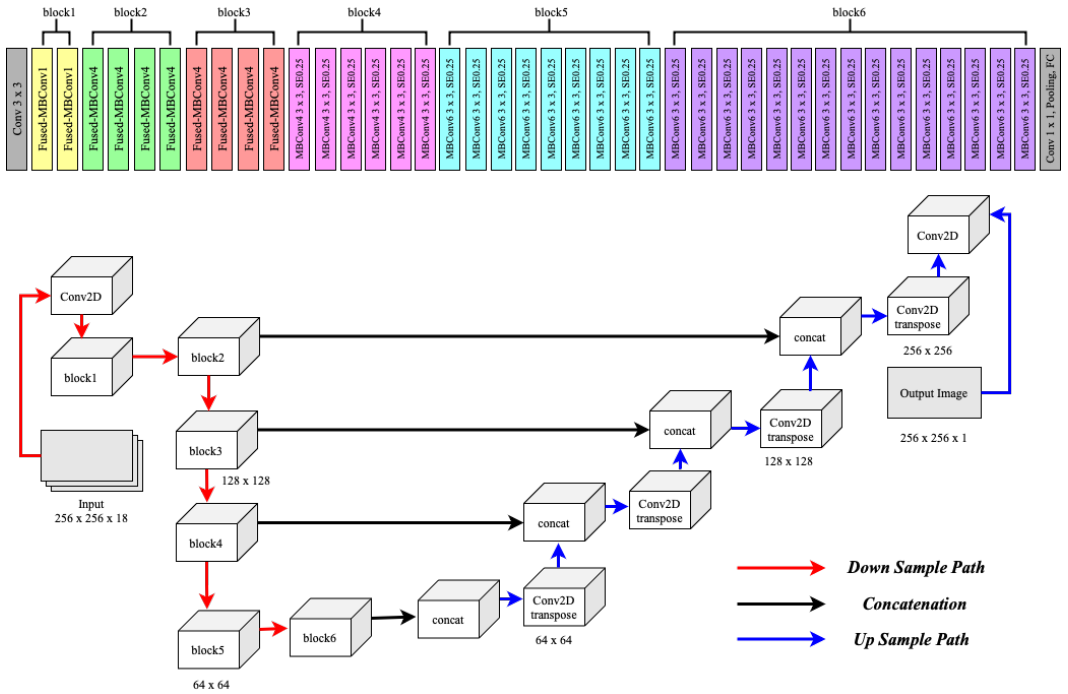
1. Collaborative development
2. Transparent and free
3. Annual product
4. Moderate resolution
5. Flexible and adaptable
6. Build institutional capacity
7. Uncertainty assessments

Modular System Architecture



The selection model for creating primitive

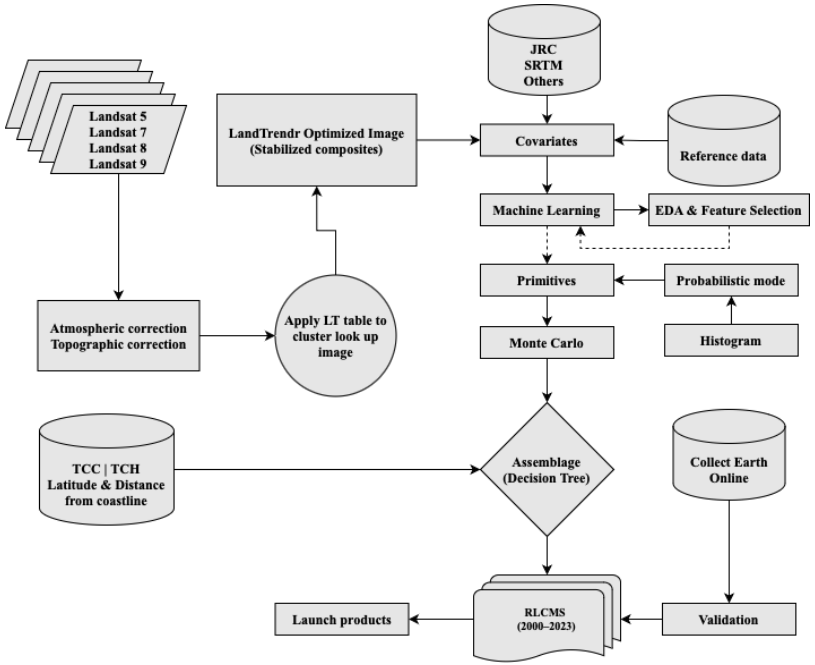




Top: the structure of EfficientNetV2, which contains six blocks (represented with a different color); bottom: the structure of our proposed method using EfficientNetV2 as an encoder and the convolutional layers of UNET as a decode.

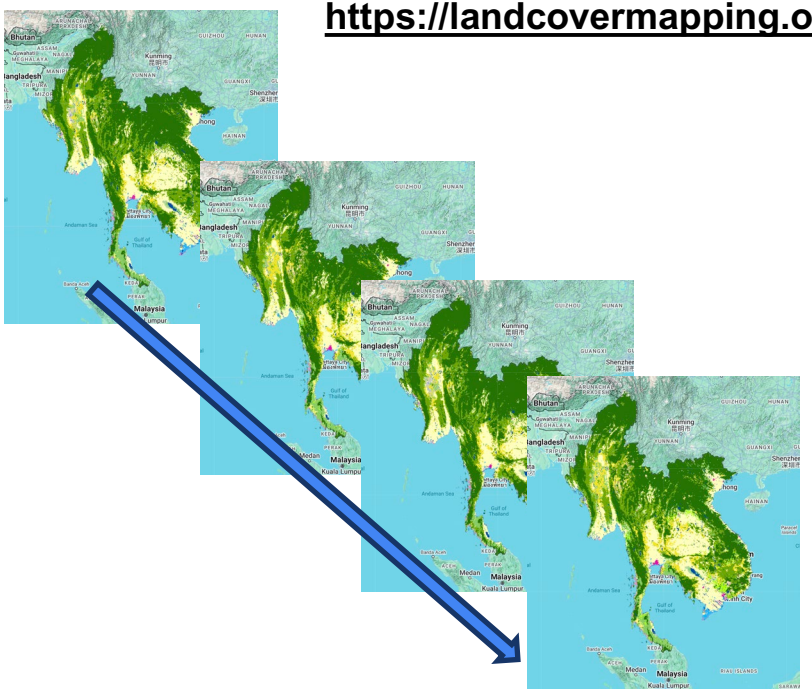
Regional Land Cover Monitoring System

Approach and methods



Results and maps

https://landcovermapping.org/en/



- Time series Land cover map apply RLCMS.
- Primitives was created by ML and DL

Current Technology: Foundational Model

clay

- Clay Foundation Model

Release notes

- Model release notes
- Training Data
- Software release notes v1.0

Getting Started

- Installation
- Basic Use

Tutorials

- Clay v1 wall-to-wall example
- Explore embeddings from Clay Encoder
- Clay MAE reconstruction
- NAIP Inference and Similarity Search with Clay

Finetune examples

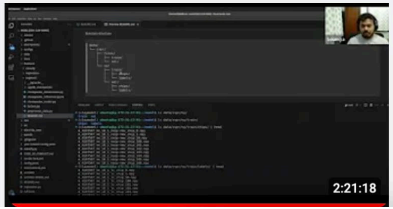
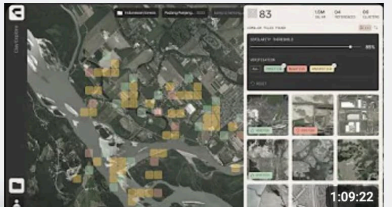
- Segmentation using Chesapeake

Clay Foundation Model

An open source AI model for Earth

Clay is a foundation model of Earth. Foundation models trained on earth observation (EO) data can efficiently distill and synthesize vast amounts of environmental data, allowing them to generalize this knowledge to specific, downstream applications. This makes them versatile and powerful tools for nature and climate applications.

Clay's model takes satellite imagery, along with information about location and time, as an input, and outputs embeddings, which are mathematical representations of a given area at a certain time on Earth's surface. It uses a Vision Transformer architecture adapted to understand geospatial and temporal relations on Earth Observation data. The model is trained via Self-supervised learning (SSL) using a Masked Autoencoder (MAE) method.

Zero to Hero technical Guide (For developers)	Non-Technical User Guide (upcoming webapps)
	

Contents

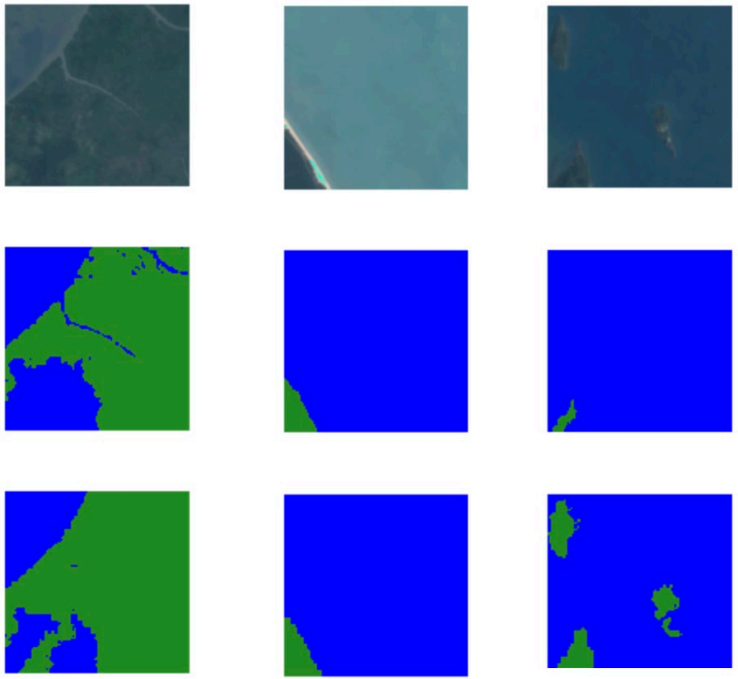
- An open source AI model for Earth
- Usage
- Where is what

Clay model: Mangrove Mapping

RGB: Image

Masking

Prediction



Limitation

- Clay can work well with large area of the object.
- This can be well described where misclassify from existing products such as global mangrove watch and others

USAID FROM THE AMERICAN PEOPLE | NASA | adpc | Mekong - U.S. Partnership | MRC Mekong River Commission For Sustainable Development | SERVIR Southeast ASIA

MAP SERVICES

DASHBOARD

METHODS

CAPACITY BUILDING

LIBRARY

RLCMS

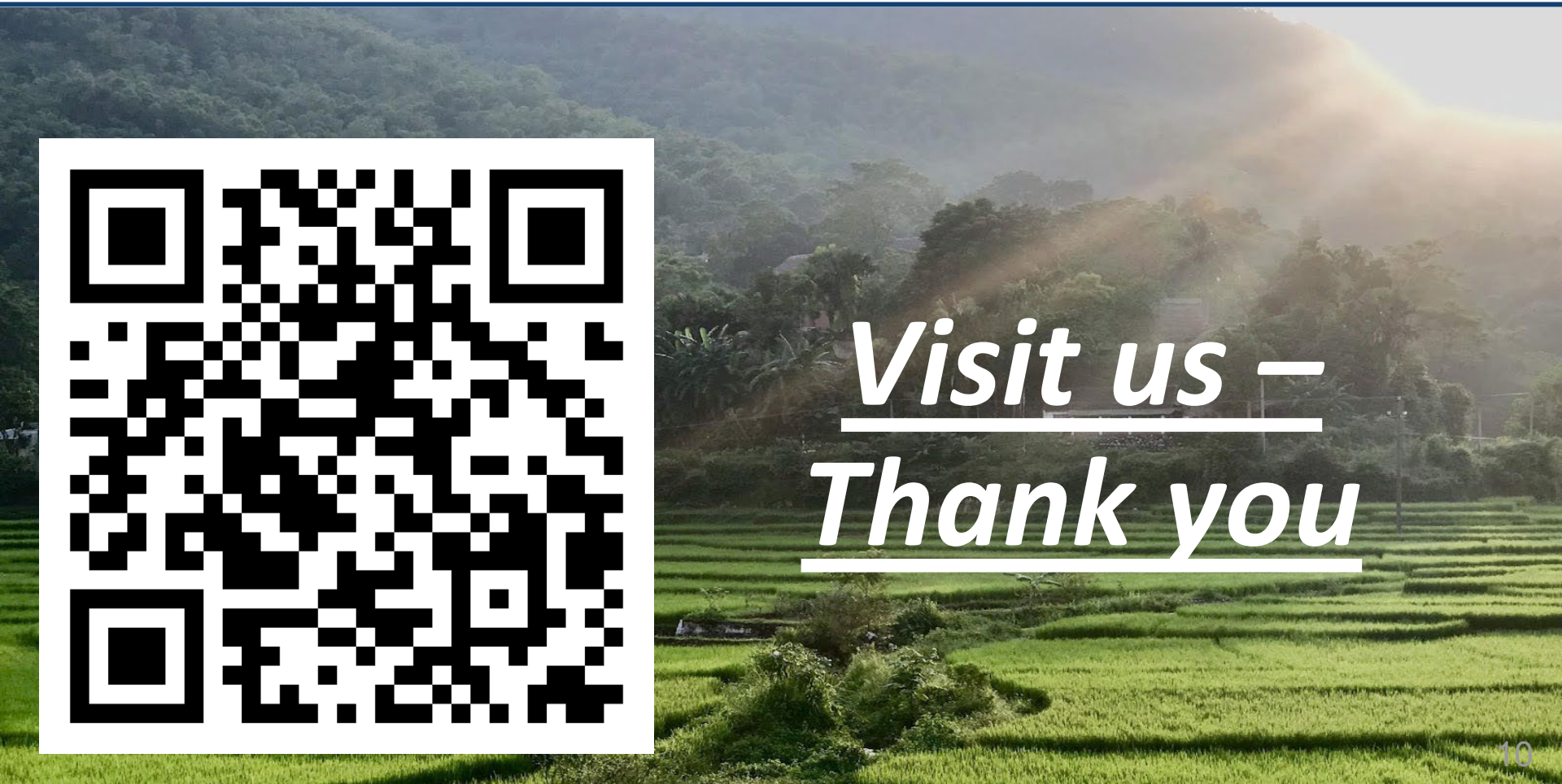
2021
Cambodia Protected Area Alerts System

2021
Cambodia Biophysical Monitoring and Evaluation

2020
Land Cover change hotspot analysis for MRC

2019
Myanmar National Reporting for UNFCCC

2019
The Mekong Region - State of Land Report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Thank you