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Steps in mapping climate-risks and adaptation plans

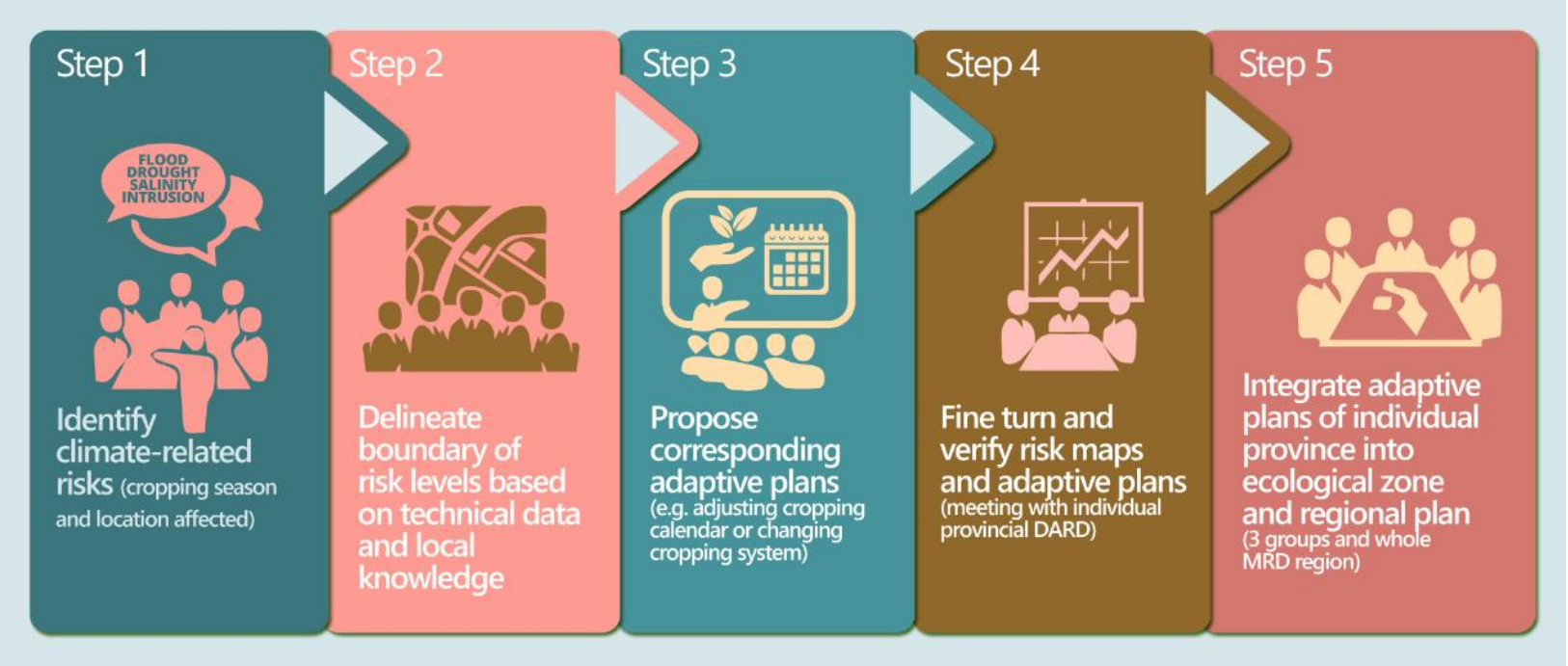
Training workshop on mapping climate-risks and adaptation plans using CS-MAP approach

Phnom Penh, Cambodia | 19-20 December 2022

Outline

0. Getting ready
1. Step 1: Define climate-risks and agriculture products
2. Step 2: Mapping climate-risks
3. Step 3: Propose adaptation plans
4. Step 4: Revise climate-smart maps and adaptation plans
5. Step 5: Map integration at province level

CS-MAP process



Participants:

- Agriculture officials
- Hydrology officials
- Natural resources officials
- Environment officials
- Private sector
- Local people (i.e. agricultural extension officers, village leaders, farmers, etc.)

Province map information from **district** level

Outline

Getting ready

1. **Step 1: Define climate-risks and agriculture products**
2. Step 2: Mapping climate-risks – Normal year scenario
3. Step 3: Propose adaptation plans
4. Step 4: Revise climate-smart maps and adaptation plans
5. Step 5: Map integration at province level

Step 1:
Define climate-risks and agriculture products

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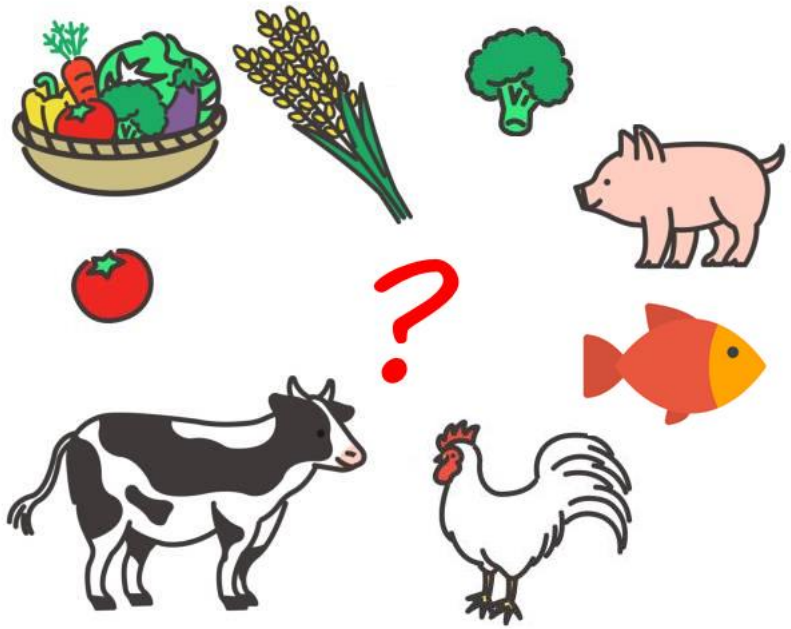
Purpose

- Develop criteria to determine climate-risks
- Determine the top 3 important agricultural products

Output

- List of climate-risks
- List of top 3 important agricultural products
- Potential damage levels of those risks to agricultural products



Methods

- Focus group discussion (FGD)
- Key Informant Interview (KII)

Materials and equipment

- A0 sheets, markers, colored notes

Step 1:
Define climate-risks and agriculture products

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Implementation

Prepare a list of climate-risks

- lists climate-risks in the targeted region and relevant causes on an A0 sheet

- view, discuss, supplement the list of risks if necessary
- determine the affected agricultural products

In case of multiple climate-risks, use the Pairwise Ranking method to identify the priority

Climate risks, damage levels, affected agricultural products

Climate risks	Year	Level	Affected product			Causes
			Rice	Vegetables	Cassava	
Flooding	2020	Extreme	x	x	x	Severe flood from Mekong River
	2019	Moderate		x		Flood combined with heavy rain
Drought	2018	Moderate	x	x		Low river discharge, low rainfall
	2015	Extreme	x	x	x	Low river discharge, low rainfall
Heat	2012	Extreme	x	x	x	High soil and air temperature

Step 1:
Define climate-risks and agriculture products

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Implementation

Agree on a **common name** and of potential **future** damage levels of each risk

- asks participants to discuss and agree on a common name for each risk
- asks how to identify levels of potential damages
- takes notes on an A0 sheet

- view, discuss, agree on the local names of the identified risks
- discuss criteria to evaluate potential damage levels

  e.g. yield loss, level of damage, recovery cost, etc.

Names??

Local names	Common name
Flash flood	Flood
Waterlogging	
River flood	

Potential damage??

Code	Level of damage
1	High
2	Moderate
3	Low
0	No damage

Questions???

Outline

0. Getting ready
1. Step 1: Define climate-risks and agriculture products
2. **Step 2: Mapping climate-risks**
   - **2.1. Study the base map**
   - **2.2. Define spatial and temporal boundaries of climate-risks – Normal year scenario**
3. Step 3: Propose adaptation plans
4. Step 4: Revise climate-smart maps and adaptation plans
5. Step 5: Map integration at province level

Step 2.1:
Study the base map

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Purpose

- Get familiar with the base map
- Check the place names and ground objects
- Update the base map with recent changes

Output

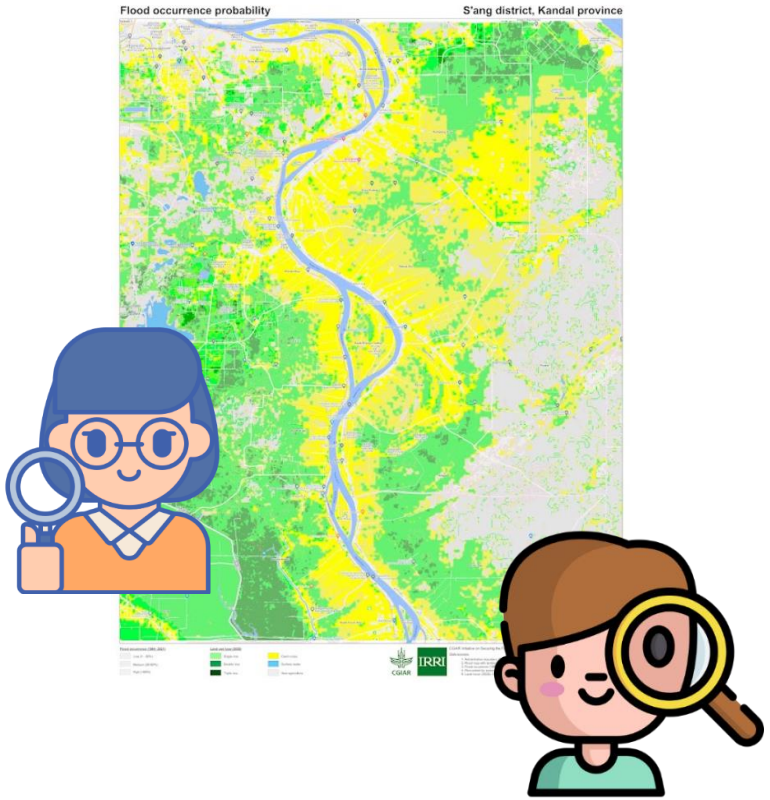
- Participants are able to recognize the directions, landmarks and locations on the base map

Methods

- Focus group discussion (FGD)

Materials and equipment

- A0-size paper base map, scale ~1:10,000 to 1:50,000 for district level
- Layers: topography, land use/land cover, landmarks and administration



Step 2.1:
Study the base map

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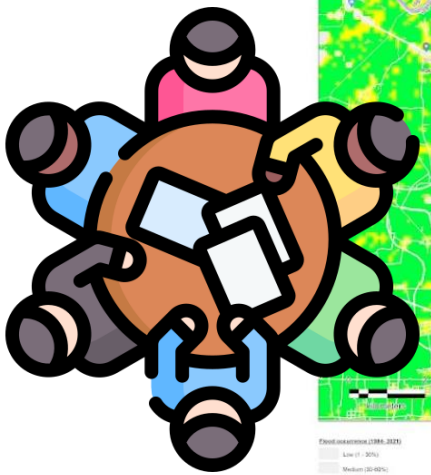
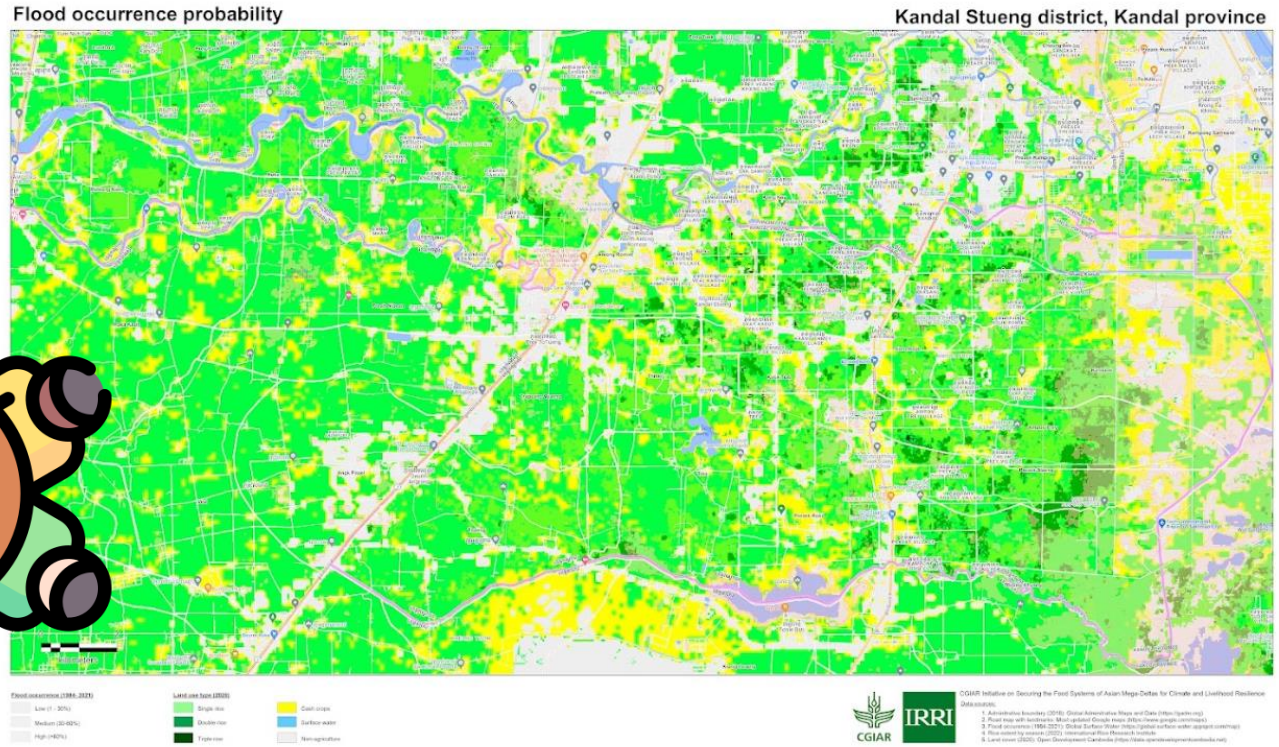
Implementation

- Place the map following the correct orientation
- Check the place names and ground objects on the map
- (Discuss updates if applicable)





Step 2.2: Define spatial and temporal boundaries of climate-risks

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Purpose

- Define scenarios of climate risks (Normal year/Extreme year)
- Define the temporal and spatial boundaries of the climate risk for each of agricultural products in each scenario

Output

- A map for each climate-risk in a scenario for a particular product by season
- Potential damage levels of the risk defined on the map

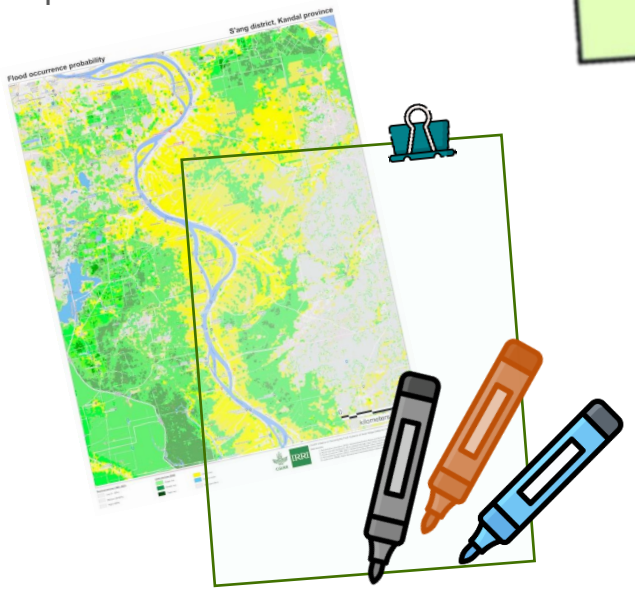
Methods

- Climate risk modelling (by research institutions)
- Focus group discussion (FGD)

Materials and equipment

- Base map (from Step 2.1)
- A0-size transparent film
- Erasable colour markers

Both temporal and spatial boundaries of a climate risk are **relative** and **need to be defined for each scenario**



Step 2.2: Define spatial and temporal boundaries of climate-risks

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Implementation

- Delineate the temporal boundary of the climate-risk
  - Define the particular seasons or time periods of each climate-risks (from Step 1.1)
- Define risks, seasons, and scenarios for all agricultural products into TASKS
  - Define clear tasks to carry out the delineation of spatial boundaries of the climate risk on the map for different products, planting seasons, scenarios and risks

Define tasks for the participatory mapping process

Task	Season	Risk	Scenario	Remarks
Rice				
1	Early wet	Flood	Normal	
2	Early wet	Flood	Extreme	
3	Main wet	Flood	Normal	
4	Main wet	Flood	Extreme	
Vegetables				
…				

Step 2.2: Define spatial and temporal boundaries of climate-risks

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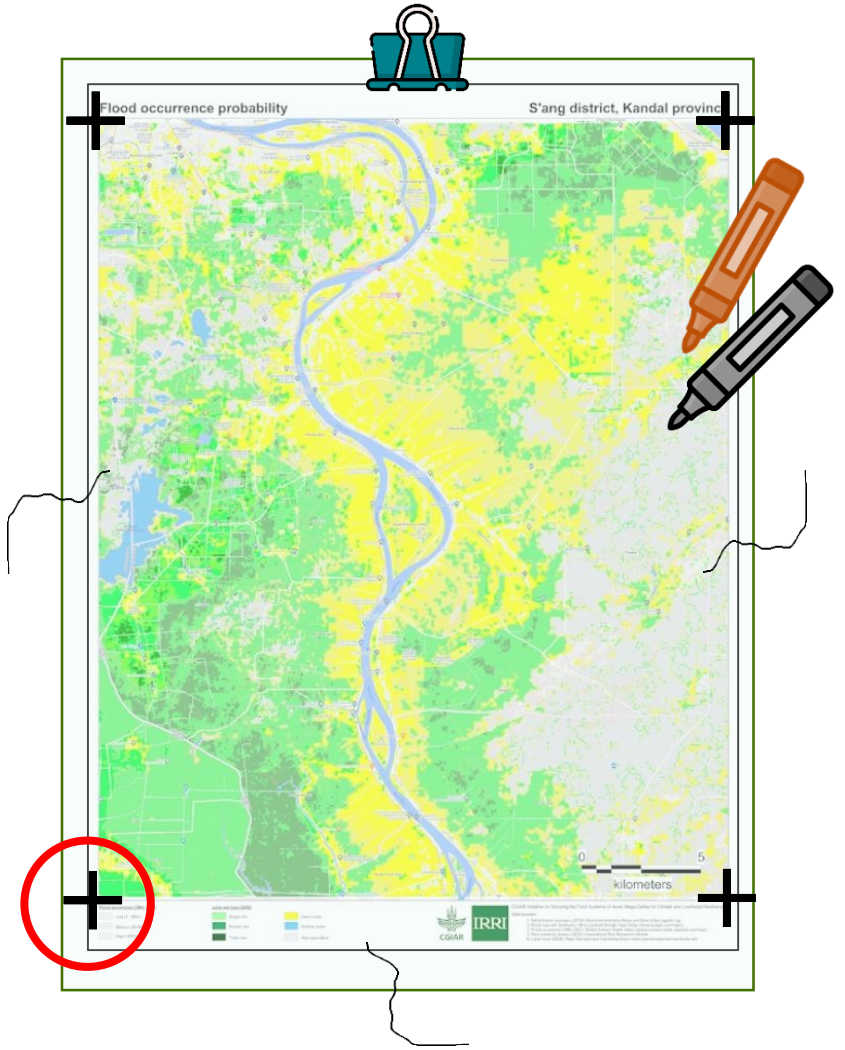
Implementation

- Delineate spatial boundaries for a climate-risks
  - Fix the transparent film on the base map
  - Mark the corners of the base map on the film with +
  - Draw the boundaries of the areas that will potentially be damaged by the climate risk
  - Write the potential damage levels in the middle of the map polygons
  - Place the map with the film on a flat surface and take photos perpendicularly



transparent film on top of the base map

Questions???

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Step 3: Propose adaptation plans

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Purpose

- Propose adaptation plans for each task

Output

- A map of adaptation plans for each task

Methods

- Focus group discussion (FGD)
- Modelling (optional)

Materials and equipment

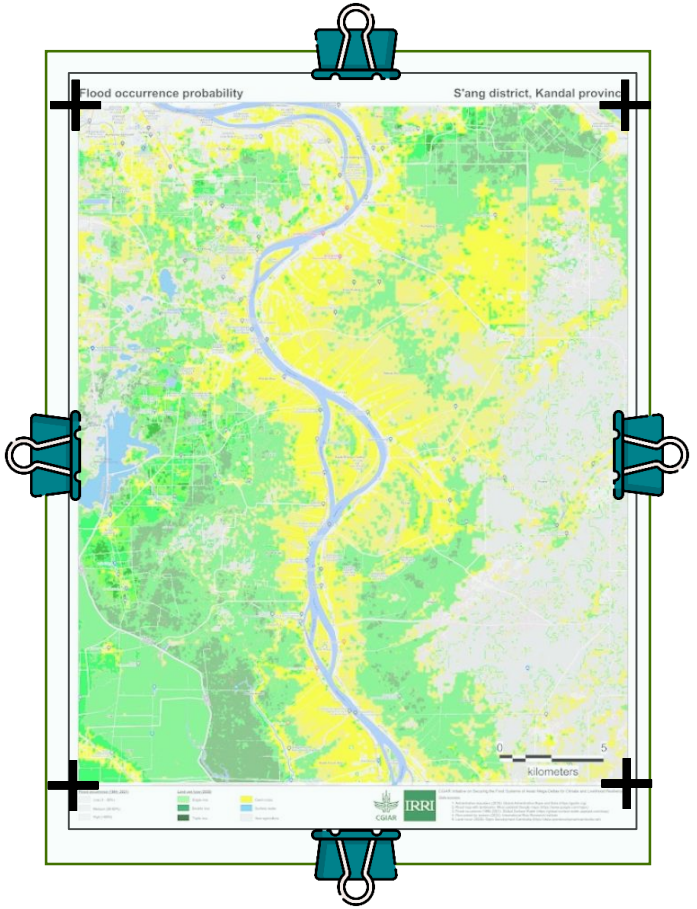
- Base map and the transparent film with risk boundaries and potential damage levels (Step 2.3)
- Erasable colour markers

Step 3: Propose adaptation plans

Implementation

- Review the climate risk, its causes, boundaries, and potential damage levels

  → build an overall picture of the region and synthesize information up to this step
- discuss adaptation actions for each affected area on the map



Description of risks, causes and adaptation plans

Task 1: Product: **Rice** Risk: **Flood**		Season: **Early wet** Scenario: **Normal year**	
Area	**Description**	**Causes**	**Adaptation plan**
1	Double-rice area near the secondary school	No drainage canals, surrounded by elevated road	• Shift to aquaculture • Open the gate for drainage • Adjust cropping calendar
2	…	…	

Step 3: Propose adaptation plans

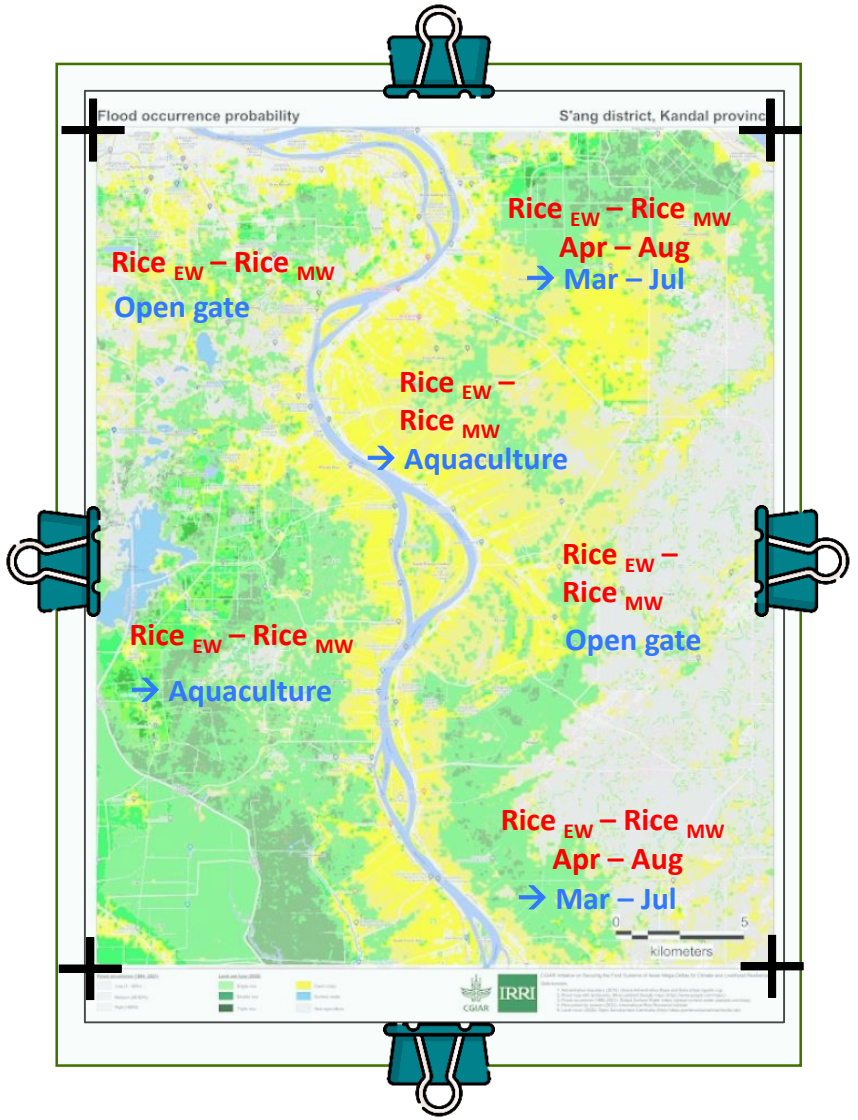
Implementation

Update adaptation plans on the map

- Note the current farming practices and production system for each specific area on the risk map (S2.2) in red

  E.g. Rice $_{EW}$ – Rice $_{MW}$
- Note the adaptation plans on the same map in blue

  E.g. → Aquaculture
- Place the map with the film on a flat surface and take photos perpendicularly



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Step 4:
Revise climate-smart maps and adaptation plans

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Purpose

- Revise maps of climate-risks and adaptation plans with participation of larger groups of local stakeholders

Output

- Information on the climate-risk map and adaptation plans are evaluated and finalised

Methods

- Focus group discussion (FGD)
- Key informant interview (KII)

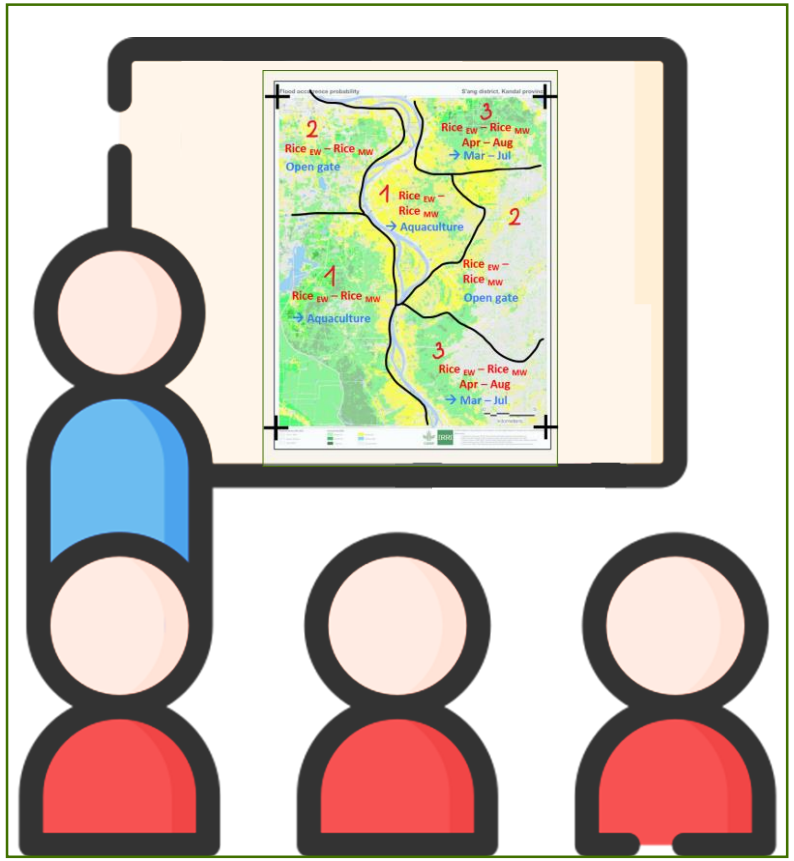
Materials and equipment

- Climate-risk map with adaptation plans (Step 3) in digital or hard copy
- New transparent film (if using hard-copy map)
- Screen (if using digital map)

Step 4:
Revise climate-smart maps and adaptation plans

Implementation

- Invite a wider stakeholder group to revise the initial risk map and adaptation plan
- Brief the mapping process and initial outputs to the sub-group
- Present the initial map and adaptation plans to participants for comments and suggestions for improvements
- Refine the risk map and adaptation plans
- Update changes to the final map



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Step 5:
Map integration at province level

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Purpose

- Integrate the adaptation plans at district scale into province scale

Output

- provincial climate-risk map and adaptation plans integrated and agreed by stakeholders

Methods

- Focus group discussion (FGD)
- Key informant interview (KII)

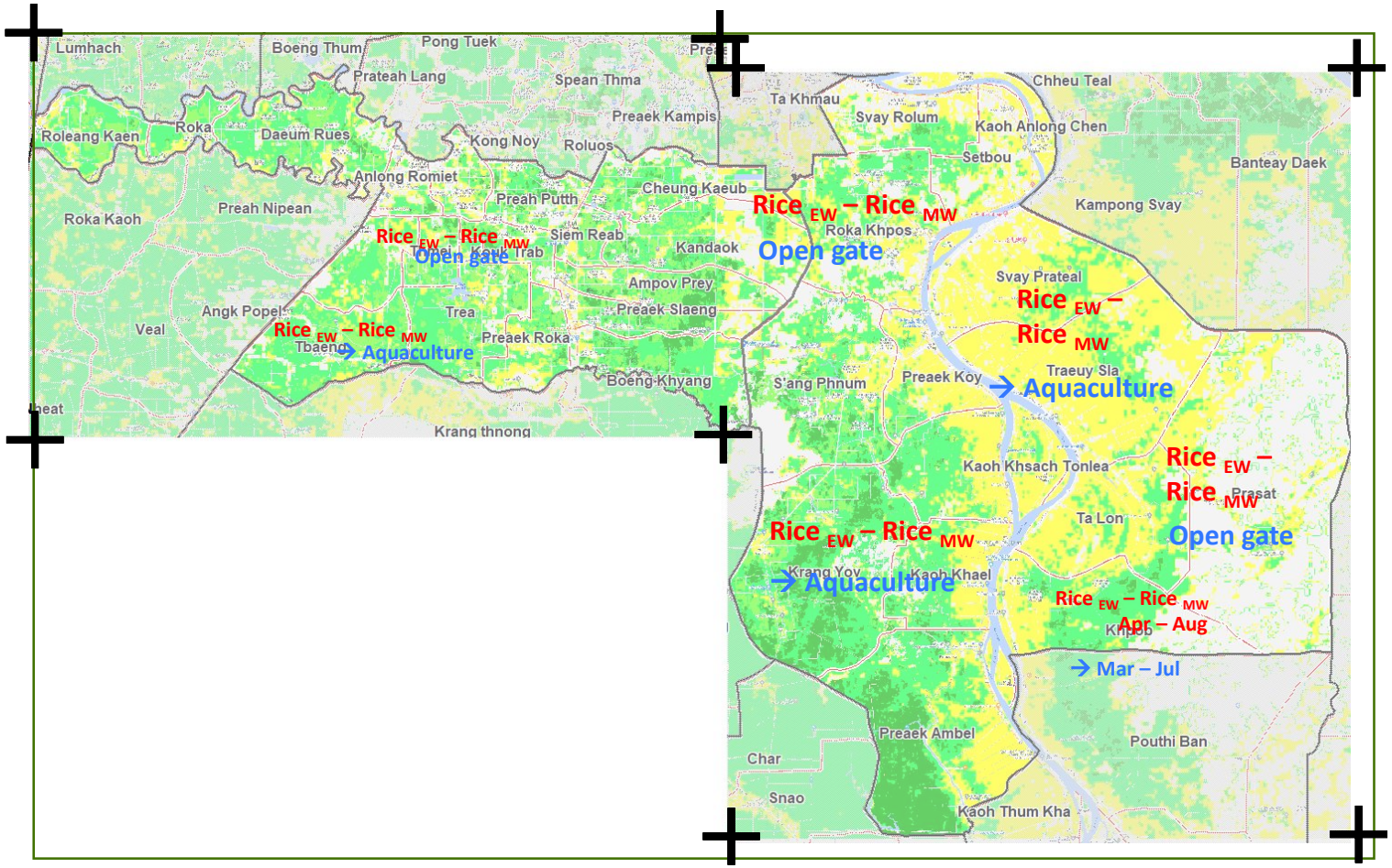
Materials and equipment

- Climate-risk map with adaptation plans (Step 4) in digital or hard copy
- New transparent film (if using hard-copy map)
- Screen (if using digital map)

Step 5:
Map integration at province level

Implementation

- Present the district maps (Step 4) to all stakeholders
- Match district maps into the province map
- Discuss mismatches to make necessary adjustments
- Refine the integrated map



Questions???

Thank you!

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