

*The MRC Regional Stakeholder Forum*

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# **MRC Council Study - Cumulative Impact Assessment**

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# Outlines of Presentation

- 1. Community Resilience & Vulnerability**
- 2. Sustainability (based on SDGs)**
- 3. Trade-offs: Cross-sector and Transboundary**



# 1. Resilience

- 1. 2020 and 2040 scenarios have a combined negative impact on resilience, without exception**
- 2. Most negative impacts on Lao PDR, followed by Cambodia and Vietnam**
- 3. Highly negative: Food security loss due to hydropower**
- 4. Highly positive: Flood mitigation investments**
- 5. Most affected communities would recover but would be worse off (not included: project-specific resettlement)**








# 1. Resilience (cont.)

?	?	Social?	Economic?	Environmental?
Lao PDR? ↓ ?	Zone 2A?	↓ ?	↘ ?	↘ ?
	Zone 3A?	↓ ?	→ ?	↘ ?
	Rest of Lao?	→ ?	↗ ?	→ ?

?	?	Social?	Economic?	Environmental?
Thailand? → ?	Zone 2B?	↘ ?	→ ?	↘ ?
	Zone 2C?	↘ ?	→ ?	↘ ?
	Zone 3B?	↘ ?	→ ?	↘ ?
	Zone 3C?	↘ ?	→ ?	↘ ?
	Rest of NE Thailand?	→ ?	↗ ?	→ ?

# 1. Resilience (cont.)

?	?	Social?	Economic?	Environmental?
<b>Cambodia?</b> 	Zone 4A?			
	Zone 4B?			
	Zone 4C?			
	Zone 5A?			
	Zone 5B?			
	Rest of Cambodia?			

?	?	Social?	Economic?	Environmental?
<b>Vietnam?</b> 	Zone 6A?			
	Zone 6B?			

## 2. Sustainability

- Sustainability defined by 14 indicators (so far, based on SDG)
- Min/Max per country: 0/14 points; Min/Max LMB: 0/56 points
- Scenarios 2020 and 2040 trigger a decline in sustainability

	Scenarios							
		M2	M3	M3CC	ALU1	ALU2	CC2	CC3
	M1	-M1	-M1	-M1	-M3CC	-M3CC	-M3CC	-M3CC
Cambodia	7.62	-1.38	-2.24	-2.27	0.31	-0.05	-0.01	-0.23
Lao PDR	8.27	-2.08	-2.24	-2.28	-0.07	-0.02	-0.05	-0.09
Thailand	8.70	-1.18	-1.47	-1.51	0.02	-0.03	-0.02	-0.27
Vietnam	5.41	-1.22	-1.70	-1.24	0.04	-0.38	0.04	-0.17
LMB	29.99	-5.85	-7.63	-7.30	0.30	-0.49	-0.04	-0.76

## 2. Sustainability (cont.)

- **Cambodia: Sustainability improves compared to 2040 scenario if no agricultural expansion**
- **Drier climate change poses large threat to sustainability if added to 2040 scenario**

	Scenarios							
		M2	M3	M3CC	ALU1	ALU2	CC2	CC3
	M1	-M1	-M1	-M1	-M3CC	-M3CC	-M3CC	-M3CC
Cambodia	7.62	-1.38	-2.24	-2.27	0.31	-0.05	-0.01	-0.23
Lao PDR	8.27	-2.08	-2.24	-2.28	-0.07	-0.02	-0.05	-0.09
Thailand	8.70	-1.18	-1.47	-1.51	0.02	-0.03	-0.02	-0.27
Vietnam	5.41	-1.22	-1.70	-1.24	0.04	-0.38	0.04	-0.17
LMB	29.99	-5.85	-7.63	-7.30	0.30	-0.49	-0.04	-0.76

## 2. Sustainability (cont.)

- Hydropower has largest impact on sustainability
- Mainstream dams trigger about 50% of the hydropower losses

	Scenarios						
		M2	M3	M3CC	H1a	H1b	H3
	M1	-M1	-M1	-M1	-M3CC	-M3CC	-M3CC
Cambodia	7.62	-1.38	-2.24	-2.27	1.73	0.79	0.20
Lao PDR	8.27	-2.08	-2.24	-2.28	1.41	0.37	-0.09
Thailand	8.70	-1.18	-1.47	-1.51	1.12	0.58	-0.08
Vietnam	5.41	-1.22	-1.70	-1.24	1.18	0.52	-0.11
LMB	29.99	-5.85	-7.63	-7.30	5.44	2.27	-0.08



### 3. Transboundary and cross sector trade-offs

- **Largest trade-offs hydropower related**
  - **Positive: Return on investment**
  - **Negative: Fisheries**
- **Benefit sharing more about sectors than countries**

	In B\$	Hydropower benefits	Fisheries costs	National Cost-Benefit Ratio	Possible Benefit Transfer Levy
H1a	Cambodia	11.1	6.5	58%	Mainstream HPP: 18.9%
	Lao PDR	36.3	4.0	11%	
	Thailand	82.9	6.5	8%	
	Vietnam	26.7	2.5	9%	
H1b	Cambodia	3.7	2.3	61%	On tributary HPP: 8.6%
	Lao PDR	17.3	2.1	12%	
	Thailand	63.7	3.1	5%	
	Vietnam	15.2	1.2	8%	

### 3. Transboundary and cross sector trade-offs (cont.)

- Third trade-off: Hydropower driven erosion
- Resulting riverbank protection would require country level cost-sharing mechanism
- Transboundary levy approx. 1.2% on hydropower profits

M3	M3CC	F2
\$5.7 billion	\$6.8 billion	\$8.2 billion

# Thank you

