Ecosystems, Water, Energy and Food

3-S River Basin: Laos, Vietnam and Cambodia

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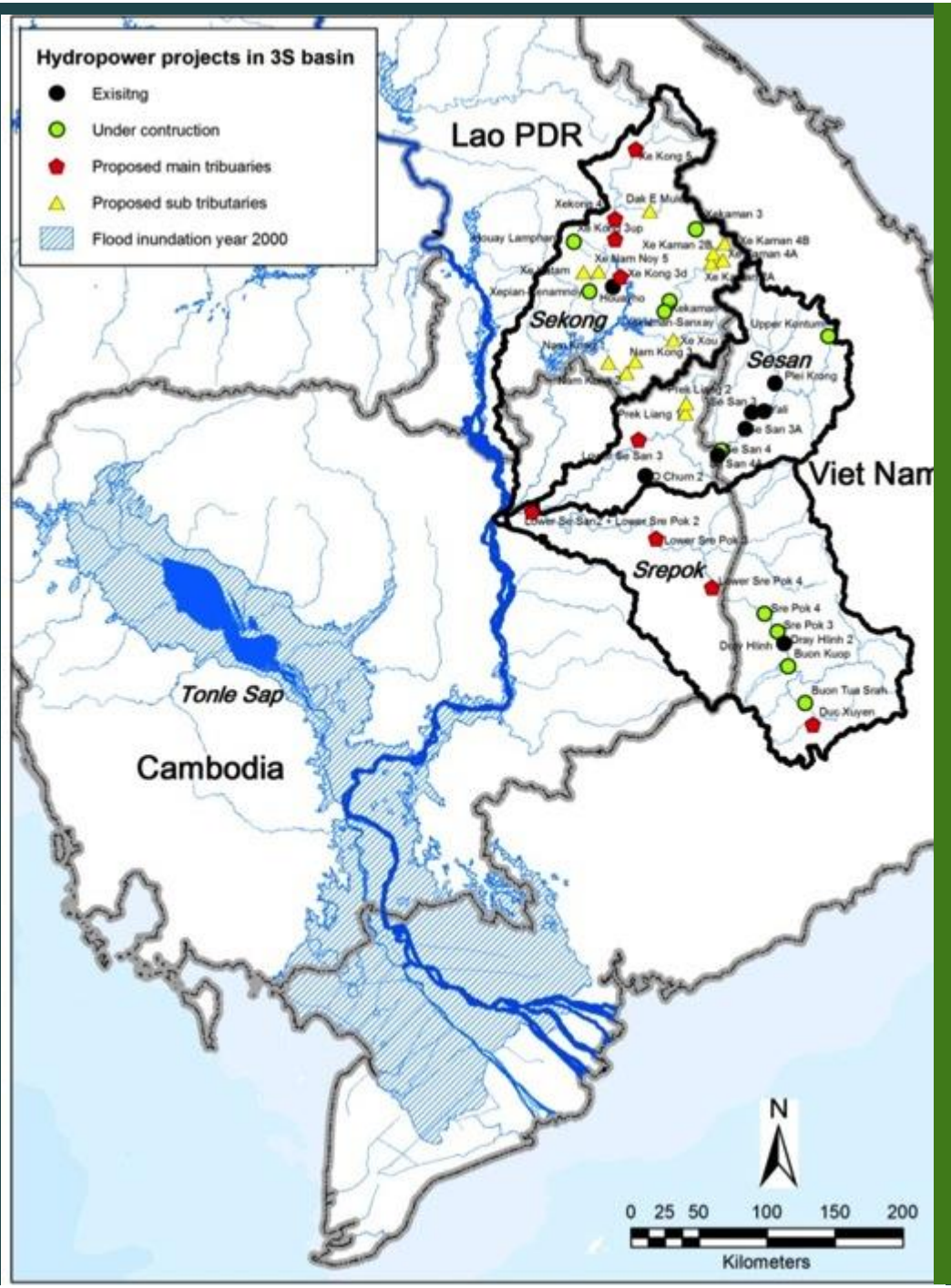
3-S River Basin: Natural Bounty

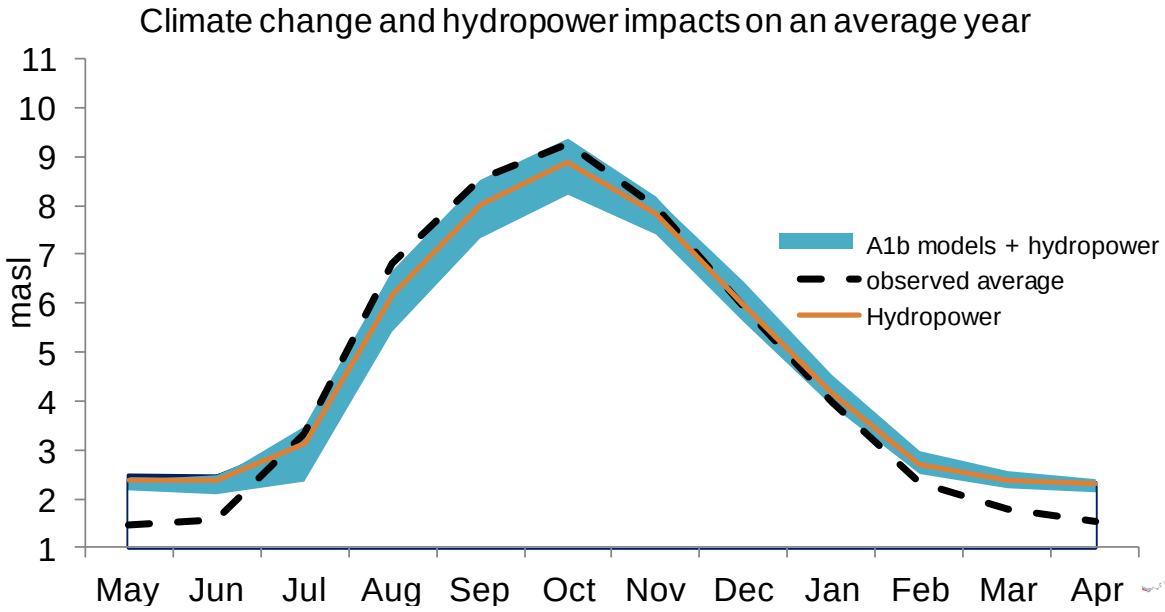
Policy:
Water diversion for energy development



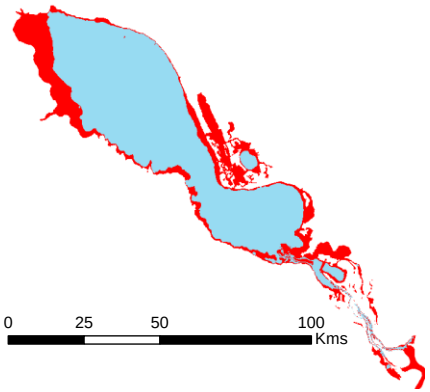
Policy:
Water diversion for agricultural development

Policy:
Land clearing for hydropower and agriculture

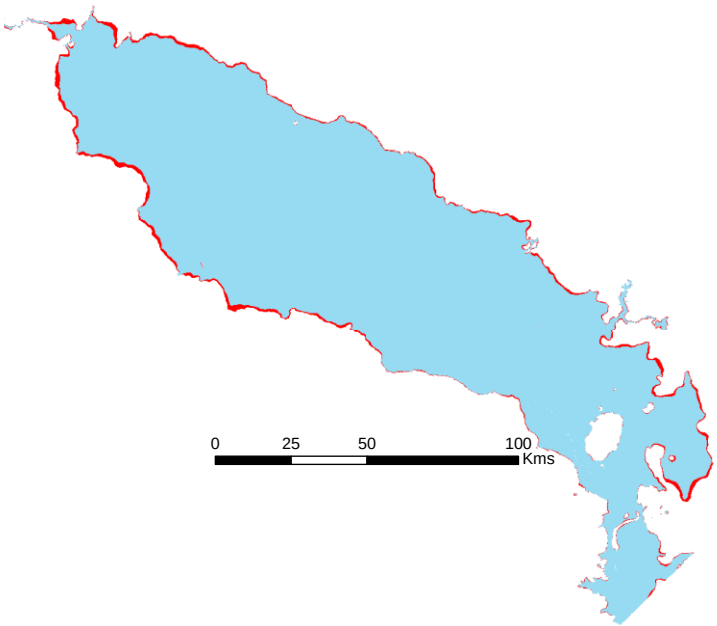
Understand water flows including climate/hydropower changes



Flood extent changes during dry season (+30%):



Flood extent changes during dry season (-10%):



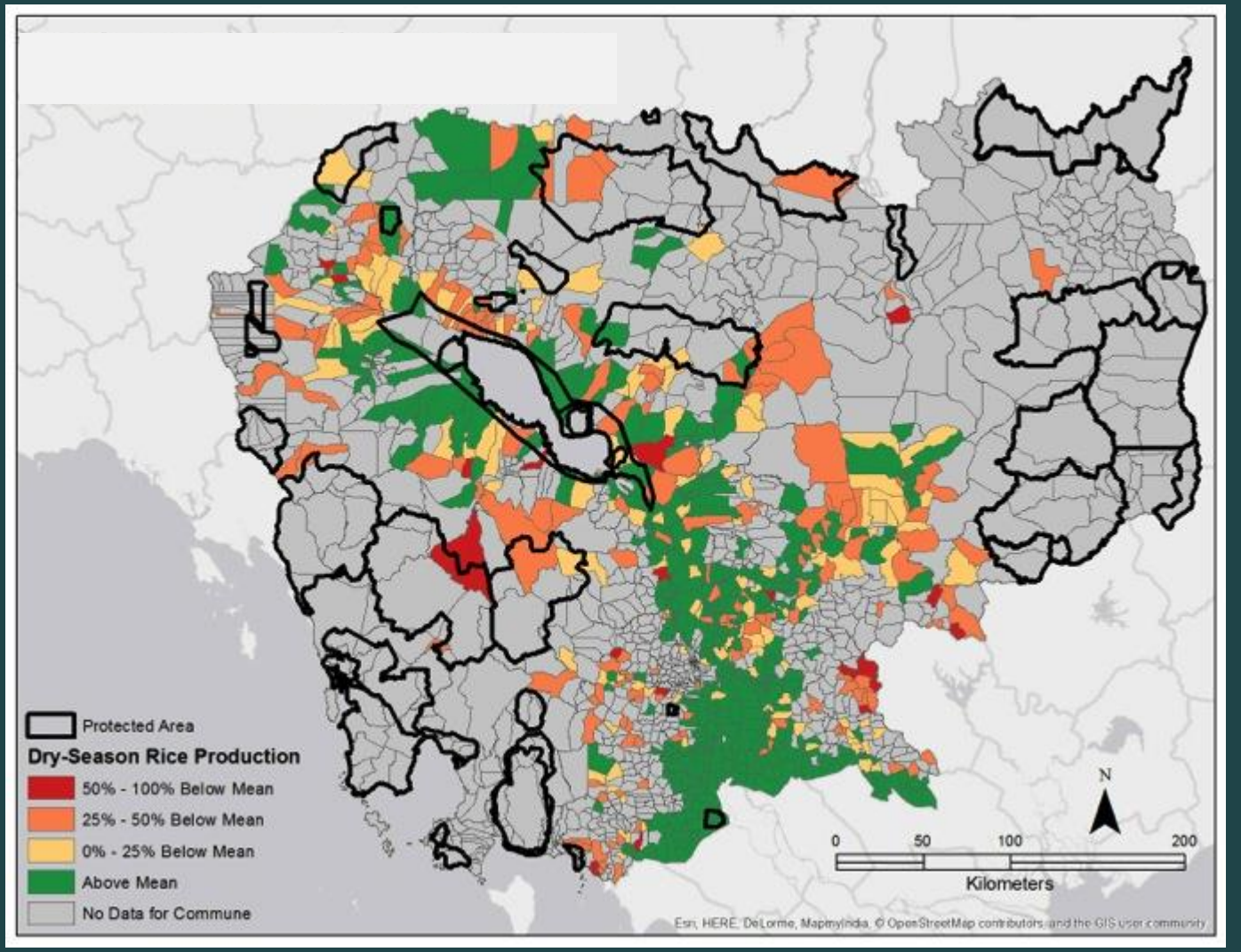
Optimize hydropower for energy and food security

- Consider dry season/water supply failures and sediment clogging costs to enhance energy production
- Relocate--3-S river mainstem dams developed as planned would increase dry season flows by 63% and wet season by 22%, compared to minimal additional impact from tributary dams
- Stop or redesign some--Lower Sesan II and Sambor effectively block most fish migration and sediment flow.
- Research other environmental ramifications – sediment, nutrients, food web, biodiversity including Tonle Sap.
- Plans for hundreds of thousands displaced upstream—resettlement and compensation plans disputed

Optimize agriculture for food and water security

- Explore water diversion for energy and ag impacts comparing recession rice and irrigated rice production.
- Link to changes in protein—fisheries production, rice production.
- Try to account for rice field fisheries options (future)
- Optimization favors making best use of natural systems, and holistic systems approach.

Optimize ecosystem/land use for food, water and energy security



Source: Commune Database

Ideas about nexus indicators for 3-S

- Water components:
  - Indicators of flow variability, occurrence of extreme hydrological events, and climate change links
- Energy components:
  - Energy dependence and mix
  - Water availability for hydropower (dry season issues)
  - Sediment flow impacts (trapped/lost energy yields)

Ideas about nexus indicators for 3-S

- Food components:
  - Impacts of diverted water/sediment on fisheries and rice production
  - Water availability for irrigation (diversion/impoundments and impacts on rice production)
  - Losses in protein linked to above (Lysine)
  - Degree of cultivation of arable land
- Ecosystems/sustainable land use components:
  - Lands under intensification versus new clearings for crop production
  - Lands and waters under protection and effectiveness of that protection
  - Economic land concessions within versus outside of protected areas
  - Areas containing critical natural capital and their value

3-S cooperation and collaboration

- http://cambodiahydropower.weebly.com/

Next Steps for CI

- Securing partners (MRC, IUCN-Bridge, Birdlife, WWF, etc) to determine the right entry point for nexus information.
- More detail about policies and trade-off consequences.
- Sharing existing information about nexus issues to advance 3-S basin development cooperation dialogues.
- Finding information gaps and needs identified by 3-S decision makers, and filling those needs.
- Demonstration of nexus management for one or more components.

Thank you for your kind attention!!

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