

Climate Change Adaptation and Development



Suppakorn Chinvano
Southeast Asia START Regional Center
Chulalongkorn University

Climate Change Adaptation and Development

Works on climate change

- Modeling – future climate projection downscaling / crop modeling / hydrological modeling
- Socio-economic scenario building exercises
- Develop various approaches for different scales of CCA assessment
- Capacity building through research programs
- Risk communication

Climate Change Adaptation and Development

Understand risk from holistic view of future

Combine climate change and socio-economic change into consideration

- Factor in climate change into community development planning process along with other changes in society
- Seek for better way to manage risk in light of climate change as part of development pathway

Broaden context of climate change adaptation to development agenda

Mainstream climate change into community development strategy & plan

- Linking current context with future – increase resilience against climate risk both NOW & FUTURE
- Improve robustness of plan to cope with current climate threat in light of climate change

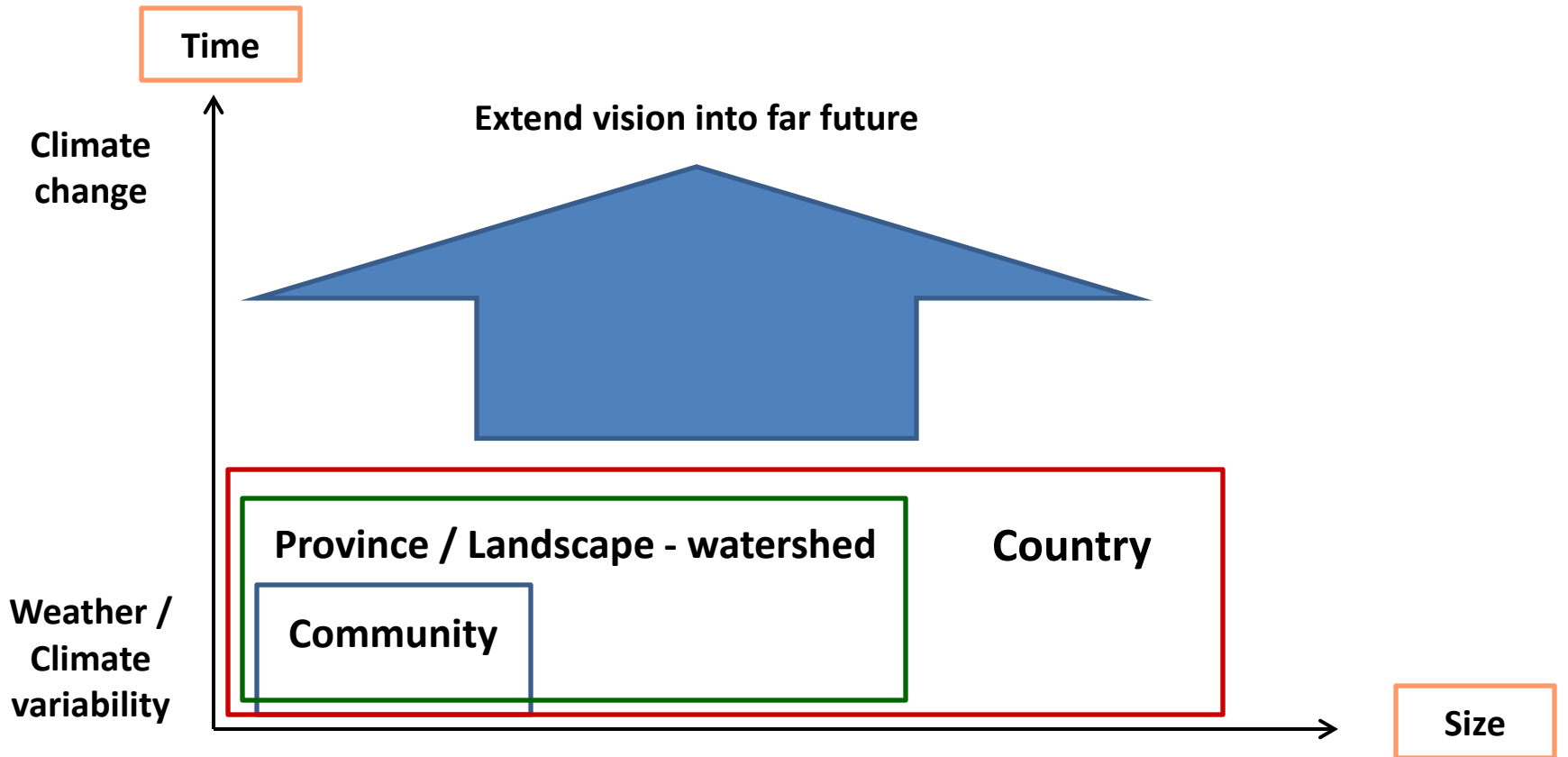
Climate Change Adaptation and Development

1) Strategy and plan in unfamiliar timescale

- Climate change adaptation requires extended vision into very far future
- Paradigm shift in policy planning is required
- Climate change adaptation cannot base on “Predict – then – Act” approach

Climate Change Adaptation and Development

2) Matter of scale – different scales / different concerns / different contexts

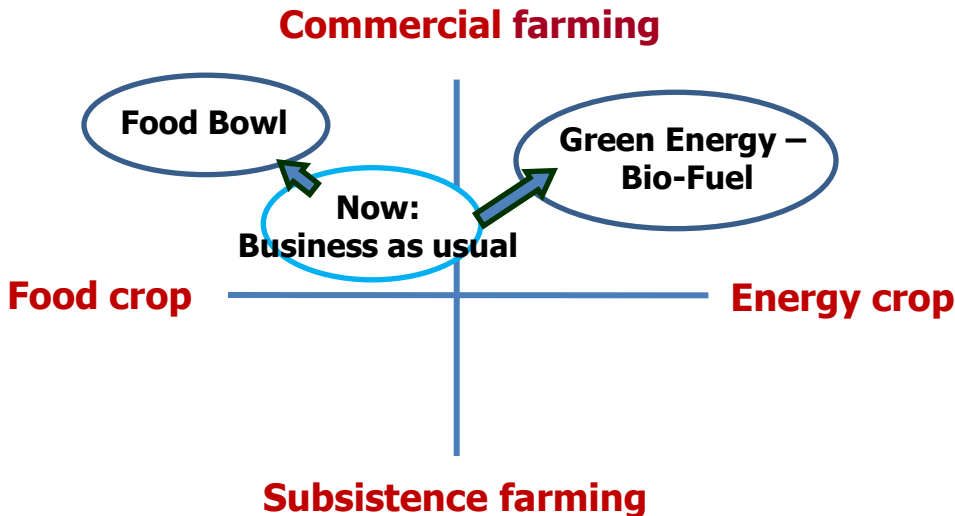


Climate Change Adaptation and Development

National level – Different development pathways in light of climate change

Example: Future crop production scenarios in Chi-Mun river basin

Different development directions / government policy schemes bring different context to think about climate change adaptation



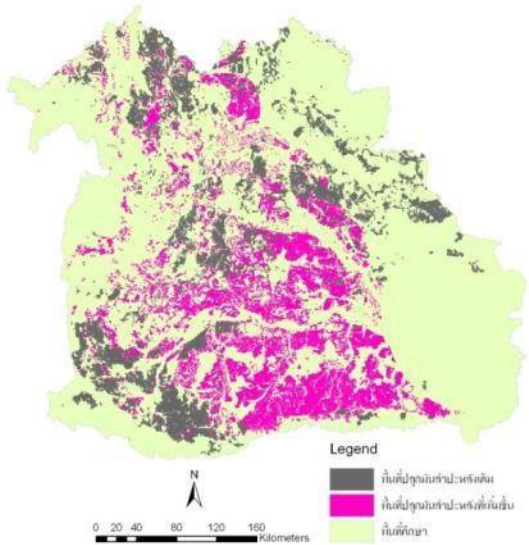
	Future scenario	
	Food Bowl	Green Energy - Biofuel
Wet season / Rainfed rice	↓	↓
Dry Season / Irrigated rice	↑	↑
Sugarcane	→	↑
Cassava	→	↑
Other crops	↓	↓

Climate Change Adaptation and Development

Different crop production area – scenarios of the future

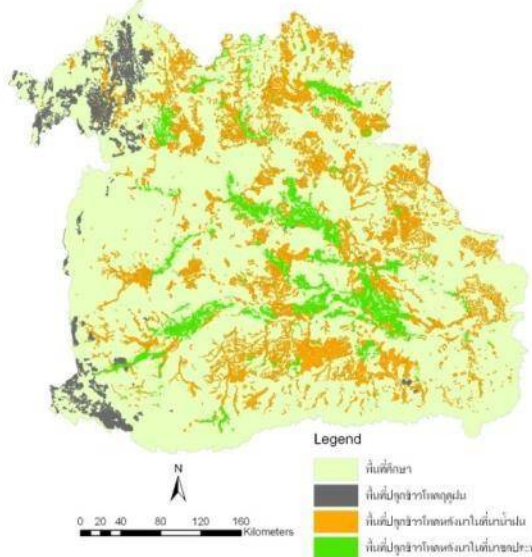
Cassava

S3: พื้นที่ปลูกมันสำปะหลังที่เพิ่มขึ้นจากแนวทางการผลิตพืชพลังงาน



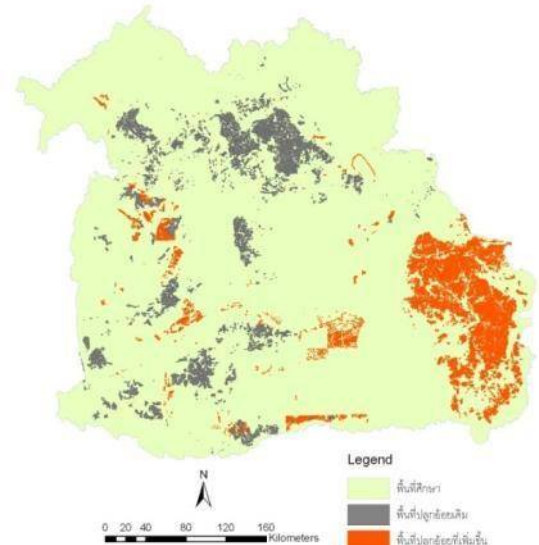
Maize

S3: พื้นที่ปลูกข้าวโพดฤดูฝน และในพื้นที่นาหลังการเก็บเกี่ยวข้าว ตามแนวทางการผลิตพืชพลังงาน ในระยะยาว



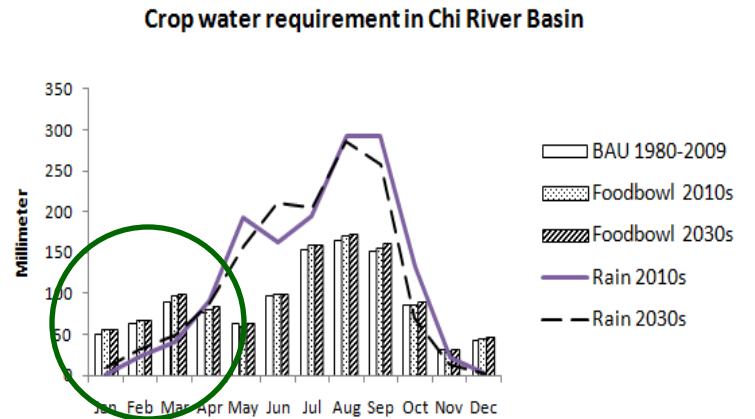
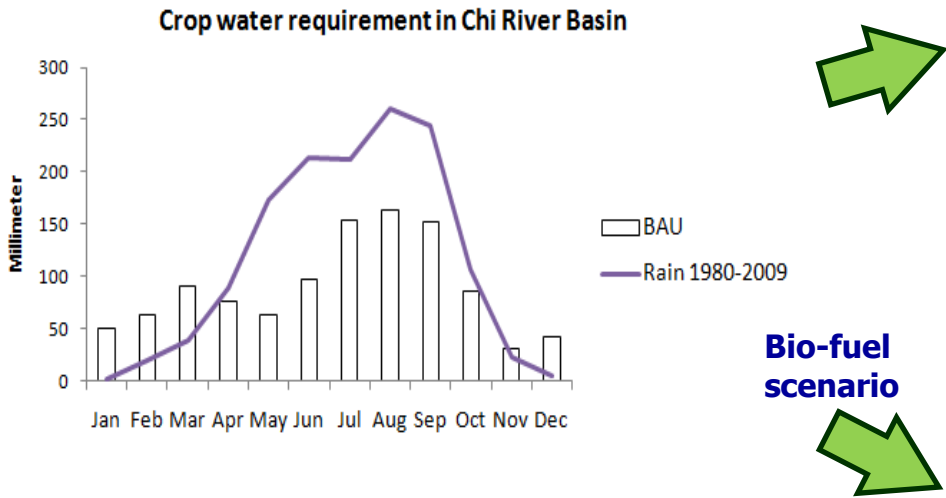
Sugar cane

S3: พื้นที่ปลูกอ้อยที่เพิ่มขึ้นจากแนวทางการผลิตพืชพลังงาน

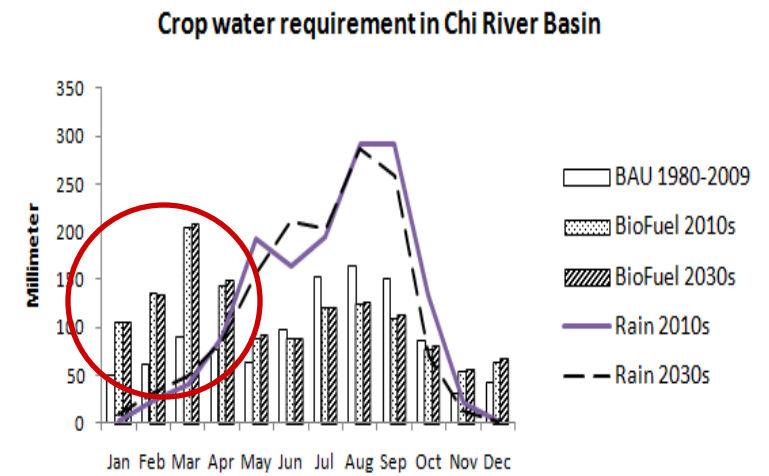


Climate Change Adaptation and Development

Different cropping pattern in the future make different water demand



Bio-fuel scenario



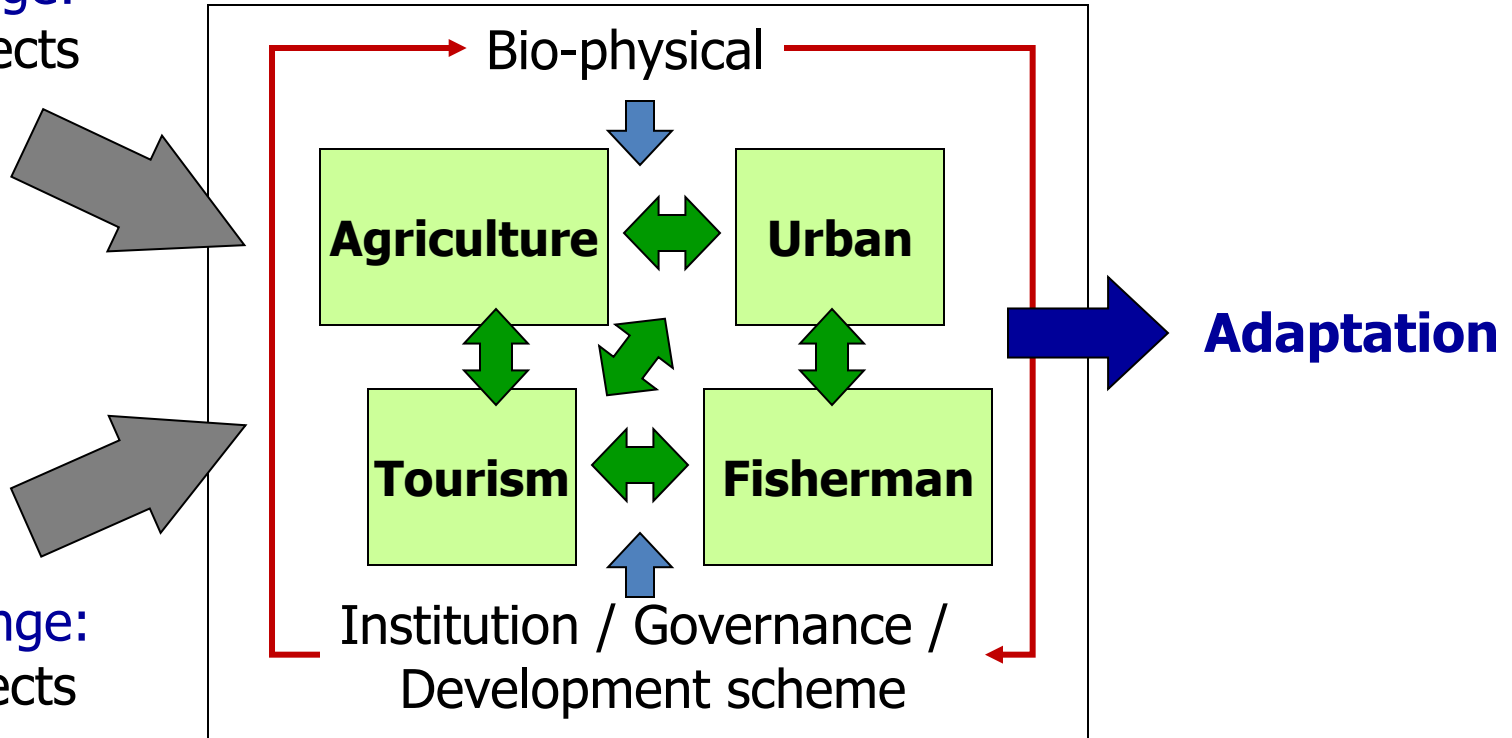
Adaptation challenge: How to provide water supply for agriculture? Is it feasible? Does it justify investment?

Climate Change Adaptation and Development

Provincial level – Harmonizing CCA for multiple sectors under multiple climate threats

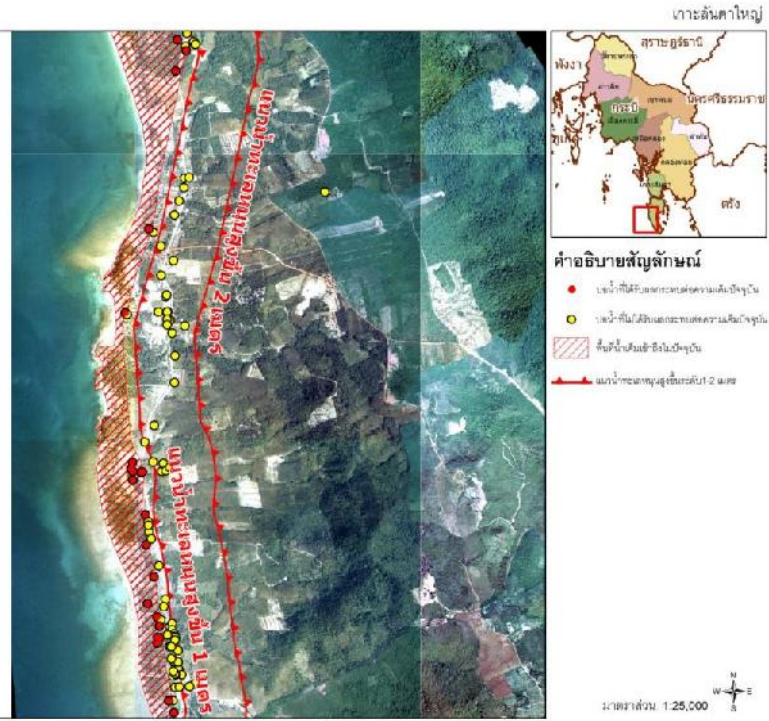
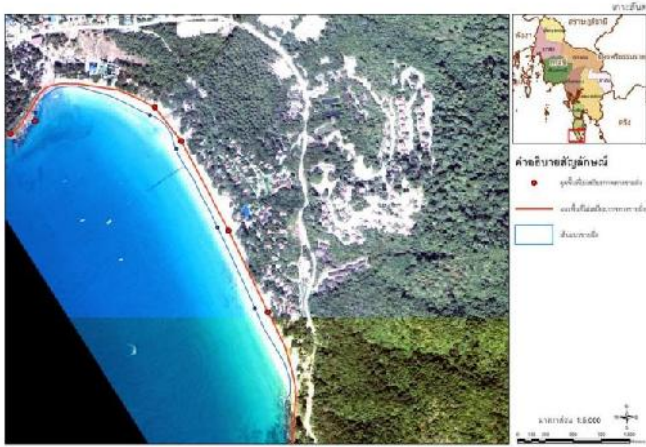
Future change:
Natural aspects

Future change:
Social aspects

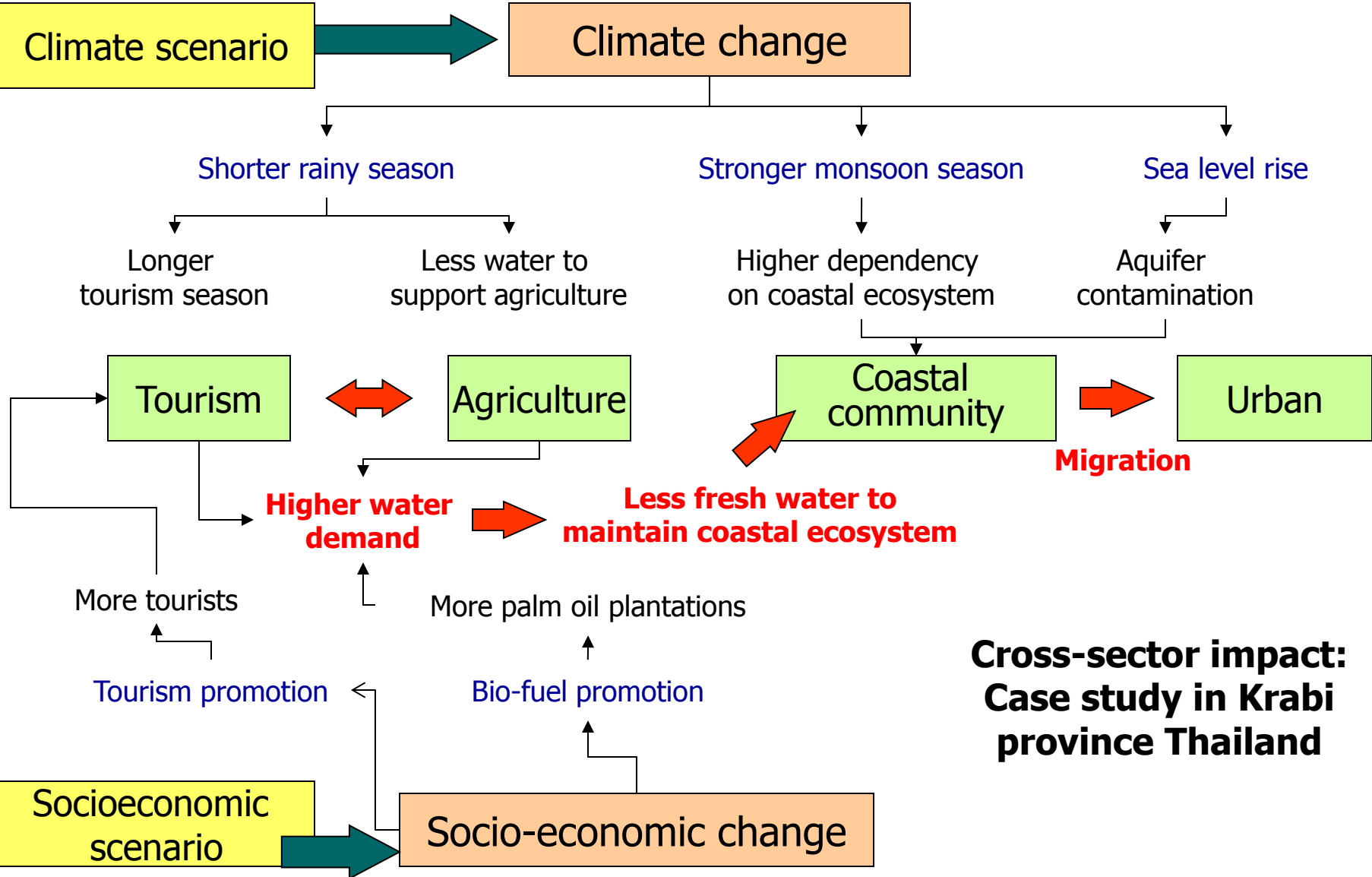


Climate Change Adaptation and Development

The story of Krabi Province, Thailand



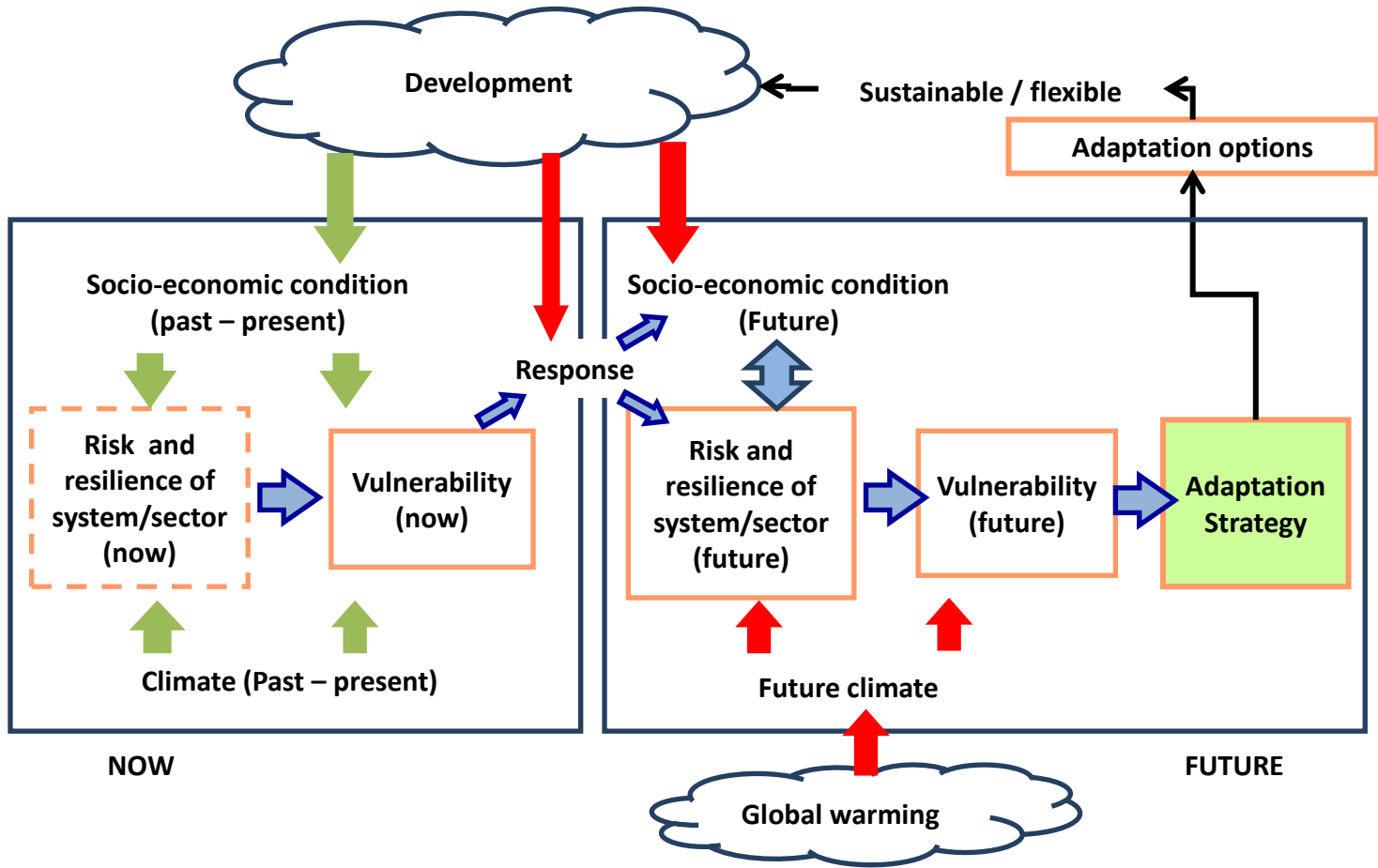
The story of Krabi Province, Thailand



**Cross-sector impact:
 Case study in Krabi
 province Thailand**

Climate Change Adaptation and Development

Community level: Incorporating future climate into decision making process



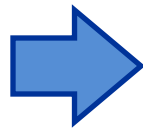
Climate Change Adaptation and Development

Example - Case study: Lao-oi District, Thailand

Farming community: wet-season rice / community is located along river

Vulnerability to climate threat: high exposure to flood with limited coping capacity

Community strategy: Won't fight with flood – change to dry season rice – use water from main river through pumping station and underground pipe system



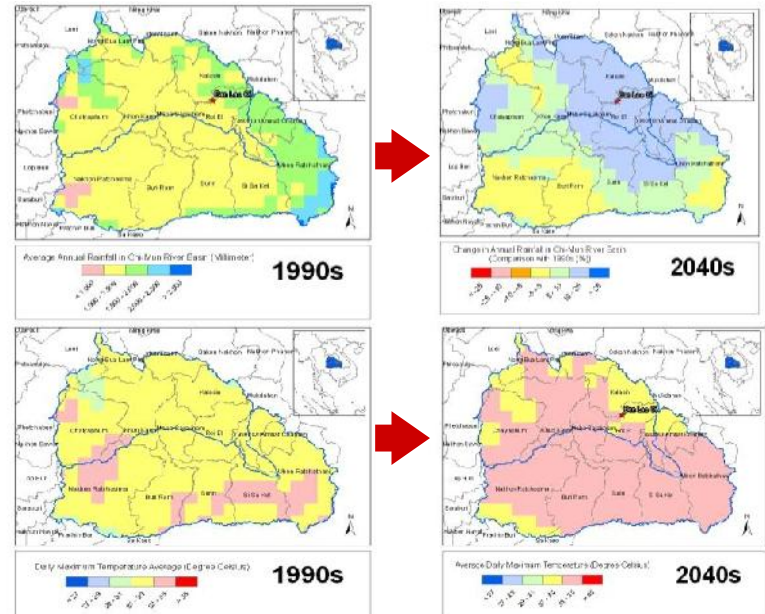
Development pathway leads to dead end in light of climate change?

Climate Change Adaptation and Development

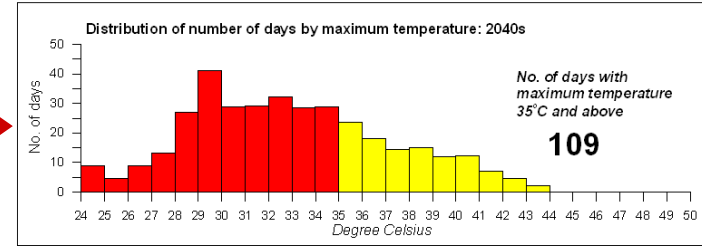
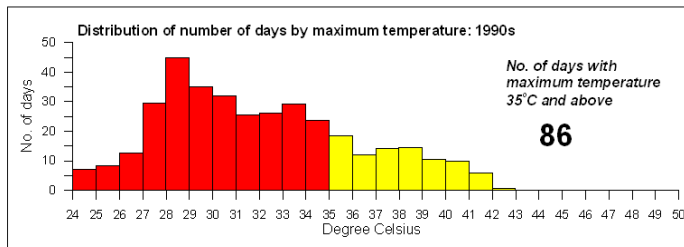
Example - Case study: Lao-oi District, Thailand

Climate change trend: higher rainfall in rainy season – longer and warmer summer

Phenomenon ^a and direction of trend	Likelihood that trend occurred in late 20th century (typically post 1960)	Likelihood of a human contribution to observed trend ^b	Likelihood of future trends based on projections for 21st century using SRES scenarios
Warmer and fewer cold days and nights over most land areas	<i>Very likely^c</i>	<i>Likely^d</i>	<i>Virtually certain^d</i>
Warmer and more frequent hot days and nights over most land areas	<i>Very likely^e</i>	<i>Likely (nights)^d</i>	<i>Virtually certain^d</i>
Warm spells / heat waves. Frequency increases over most land areas	<i>Likely</i>	<i>More likely than not^f</i>	<i>Very likely</i>
Heavy precipitation events. Frequency (or proportion of total rainfall from heavy falls) increases over most areas	<i>Likely</i>	<i>More likely than not^f</i>	<i>Very likely</i>
Area affected by droughts increases	<i>Likely in many regions since 1970s</i>	<i>More likely than not</i>	<i>Likely</i>
Intense tropical cyclone activity increases	<i>Likely in some regions since 1970</i>	<i>More likely than not^f</i>	<i>Likely</i>
Increased incidence of extreme high sea level (excludes tsunamis) ^g	<i>Likely</i>	<i>More likely than not^{f,h}</i>	<i>Likelyⁱ</i>



Source: IPCC AR4



Climate Change Adaptation and Development

Example - Case study: Lao-oi District, Thailand

Adaptation: alternative in mobilizing strategy / alternate investment

Alternate source of water resource – harvest water during flood season for dry season agriculture

To be embedded in water resource development plan



Climate resilience now and sustained in light of climate change



Thank you



Suppakorn@start.or.th