



FFESC Research Synthesis

Sybille Haeussler with help from E. Hamilton, K. Weese & A. Nicholson, June 12, 2012



FFESC Research Synthesis

- Global overview: What is adaptation?
- FFESC Overview
 - Decision-making under uncertainty
 - Ecosystem vulnerabilities
 - Evolving economies and communities



FFESC Charter (2008)

“The purpose of the FFESC is to promote research that supports adaptation of BC’s forest and range management framework to anticipated effects from climate change”



What is adaptation?

- *Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects.*
- *Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.*

IPCC 4th Assessment Report



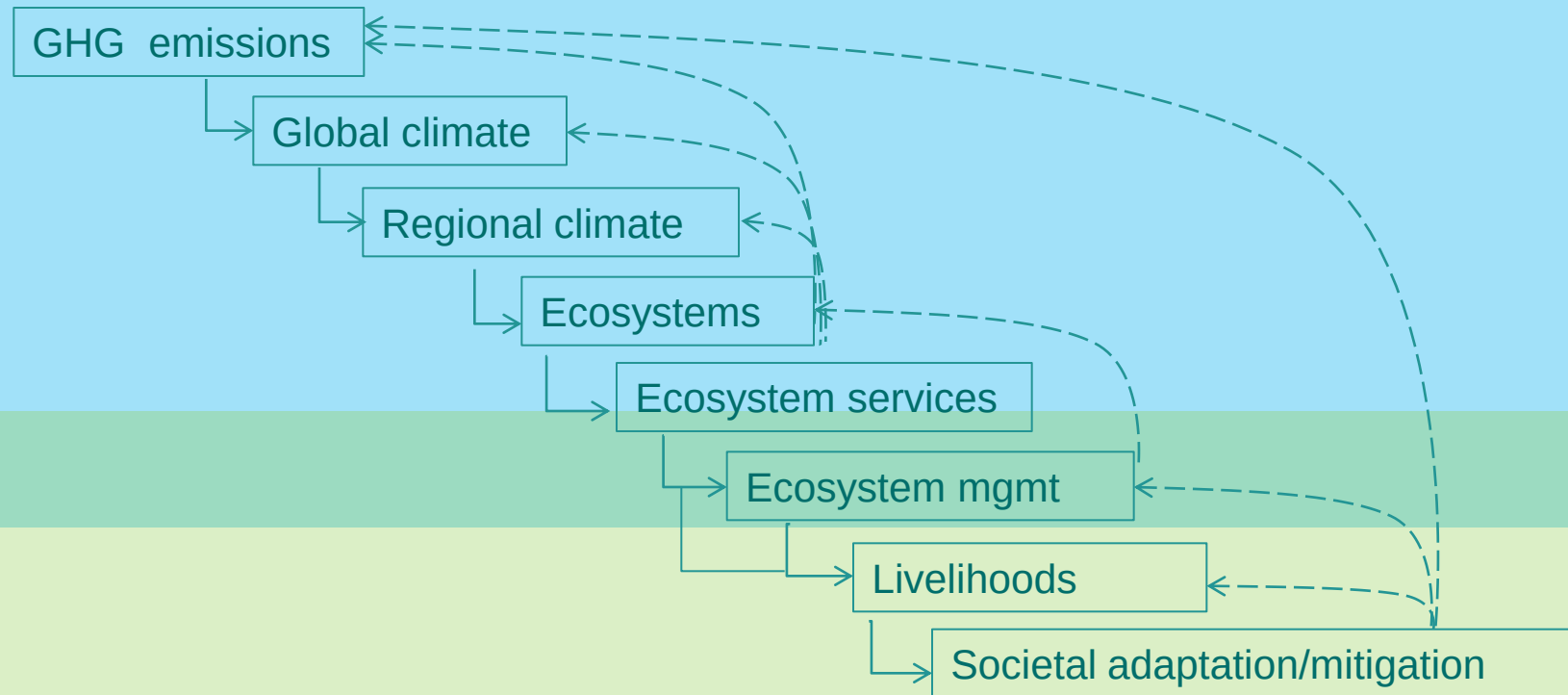






The Process of Adaptation

Natural or Physical Sciences



Social Sciences



Emerging Themes from IPCC AR5

Greater focus on:

- Climate extremes & variability
- Planetary, ecological & social tipping points
- Documenting uncertainties
- Combining mitigation, adaptation & co-benefits
- Human behaviour, ethics and beliefs
- Traditional knowledge
- Involving local people

Plus:

- New round of GHG emissions scenarios



Two Key Concepts

- Mainstreaming
- Co-benefits

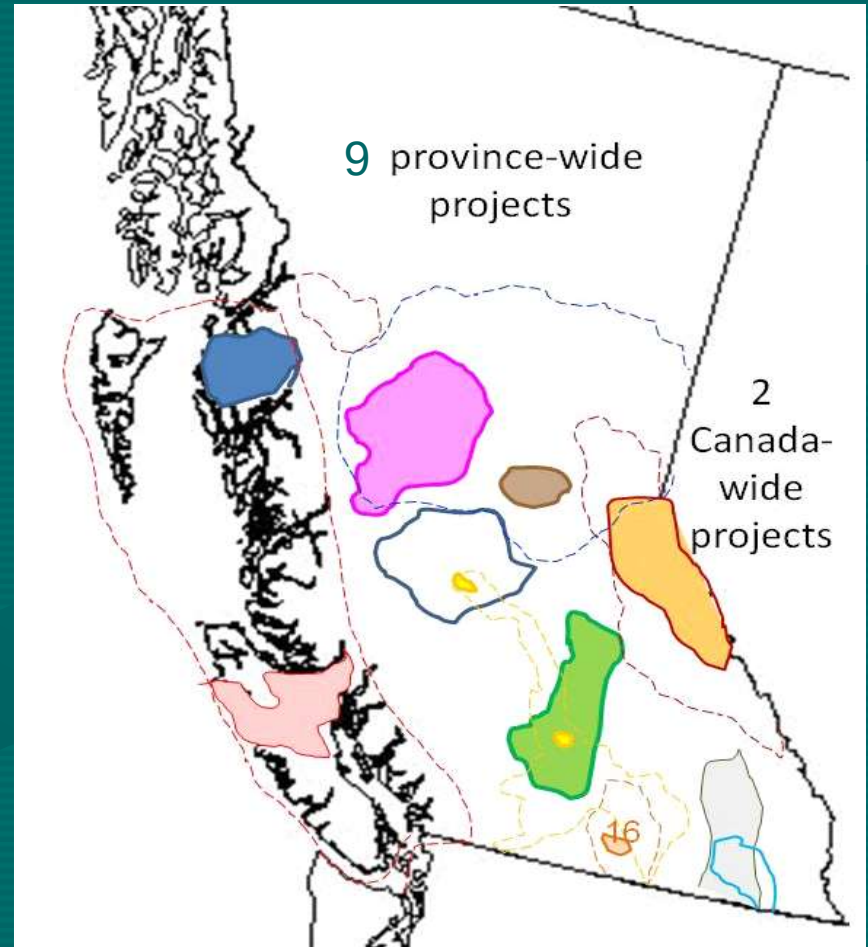




FFESC Research Overview

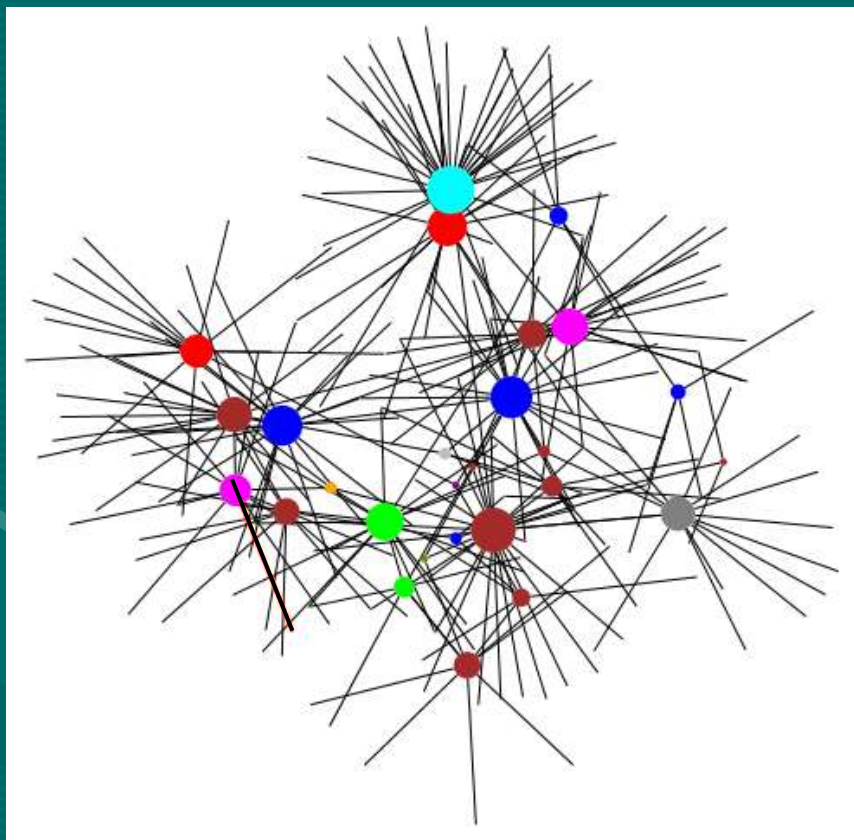
25 projects

- 9 direct-awarded (mostly specific)
- 16 competitively awarded (mostly comprehensive)





FFESC Social Network



Legend

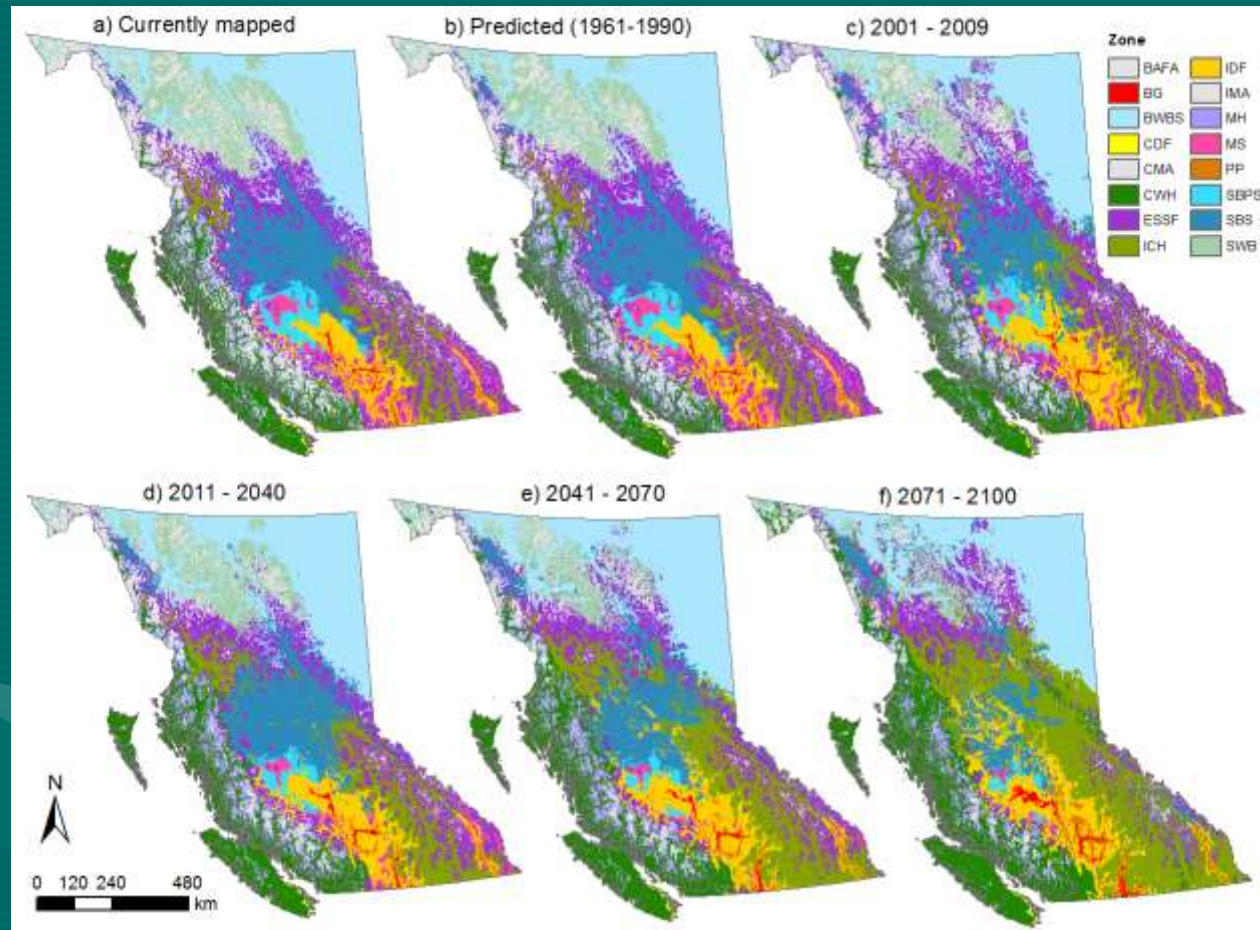
- Node size = no. of collaborators.
- Colour = institution

	TRU
	UBC
	MFLNRO
	UNBC
	FORREX
	Other NGOs
	Consultant
	Federal Govt.
	Local Govt.

2 random examples of FFESC research projects



Wang-Aitken: Projecting ecosystem climate niches



Wang et al. (2012). Projecting future distributions of ecosystem climate niches: uncertainties and management applications. *For. Ecol. Manage. in press.*

Morgan-Daust: A Multiscale, Trans-disciplinary Vulnerability Assessment

- Centred in Nadina Forest District (Burns Lake - Houston)
- Series of technical and community workshops
- Cross-scale comparison of vulnerability assessments in Nadina, Kamloops, Kootenays



Morgan et al. (2012)



FFESC Research Synthesis

Workshop sessions

1. Decision-making under Uncertainty (Tues pm)
2. Ecosystem Vulnerabilities (Wed am)
3. Evolving Economies and Communities (Wed pm)



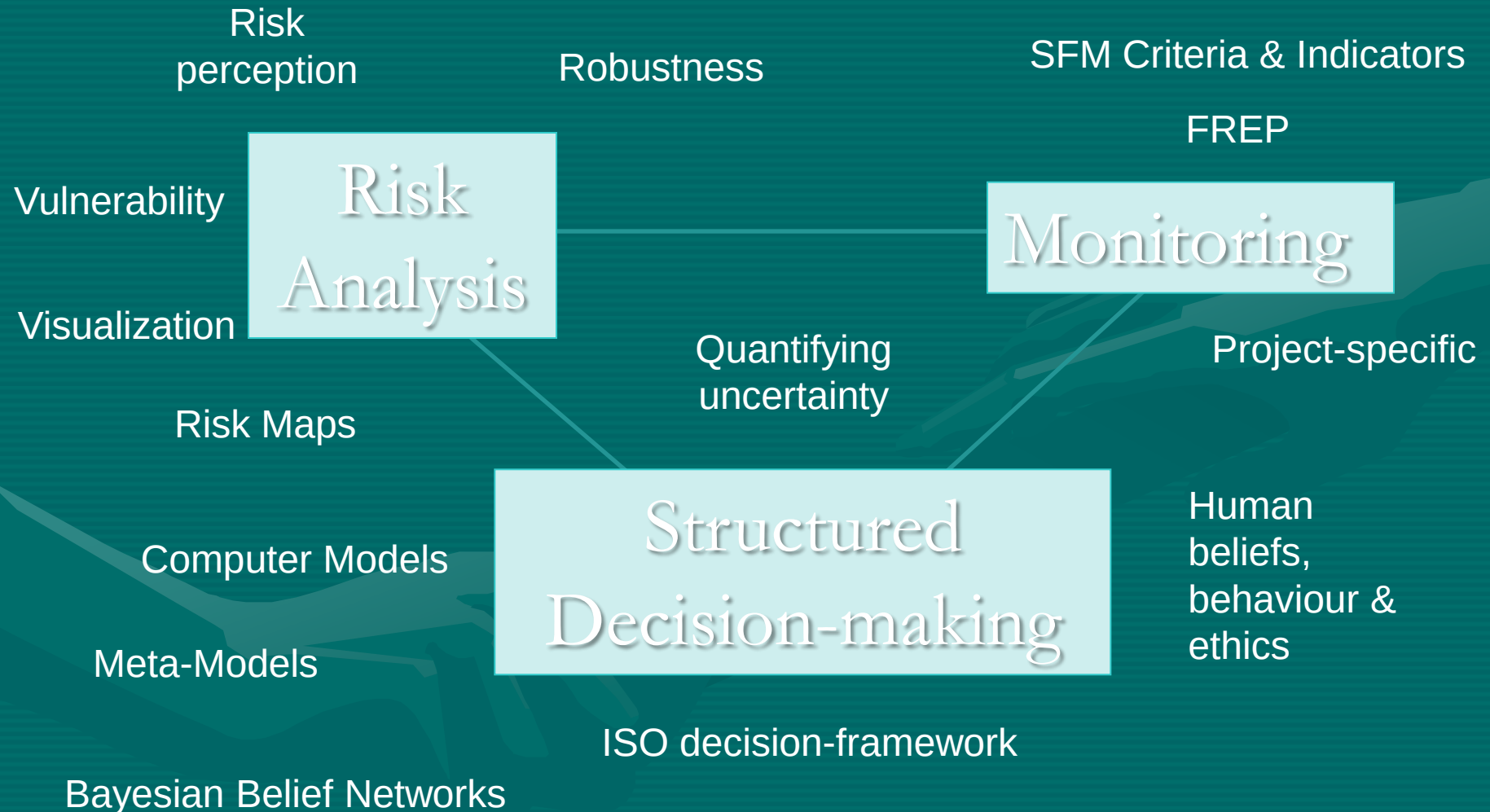
Decision-making under Uncertainty

“For forest managers, climate change represents a dramatic increase in uncertainty about the future that complicates planning.” Morgan & Daust 2012

“Agriculture—including ranching—is among the most climate-sensitive sectors in most national economies and climate variability increases the uncertainty associated with agriculture and rural livelihoods” Fraser et al. 2012

“The future nature of climate change and ...effects that it will have is uncertain. However, this should not be cause for inaction. There are a number of strategies that could be taken.” Innes et al. 2012

Decision-making under Uncertainty





Decision-making under Uncertainty

- Adaptive Co-Management
 - combines iterative learning of adaptive management with collaboration & power-sharing
- Consistent and transparent documentation of uncertainties (e.g., IPCC guidelines)

Ecosystem Vulnerabilities





Ecosystem Vulnerabilities

- High degree of consensus about best practices
 - reduce ecosystem stress
 - increase system resilience
- Such practices offer co-benefits and often enhance carbon storage in ecosystems (mitigation)
- Less scientific consensus about untested practices (e.g., assisted migration) but consistent with adaptive approach of diversifying practices

Best practices

- Diversify practices across scales
- Retain connectivity and redundancy across scales
- How can humans best intervene?
- How to tackle areas of disagreement?

Practicing adaptive co-management

- Monitor, monitor & monitor again
 - Adapt pro-actively, adapt reactively
 - Engage stakeholders meaningfully
- Example: proactive harvest of stressed forests



Evolving Economies & Communities

- BC economy diversifying away from traditional forest products industry
- MFLNRO a needed response
- Creative solutions needed



Dunster community workshop
Coxson (2012)



New opportunities for red alder
Farnden et al. (2012)



Coast Tsimshian Resources
Brinkman et al. (2012)

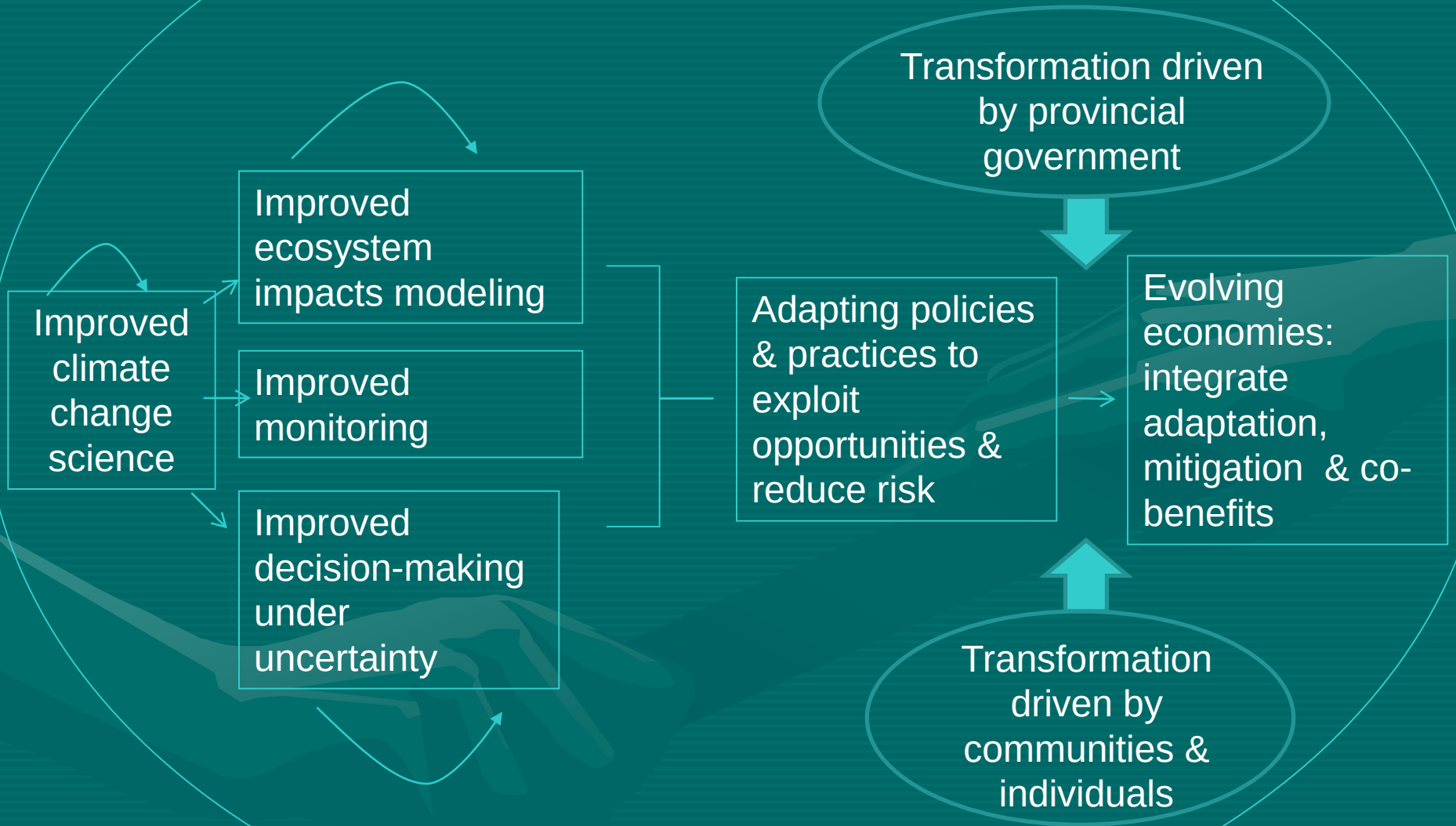


Evolving Economies & Communities

Conclusions

- 1) Adaptation requires full-cost accounting plus co-benefits
- 2) Adaptation is shared learning – not technical solutions on a platter
- 3) Local communities need top-down policy support plus more responsibility for adaptation

Global Forces of Change



An aerial photograph of a vast forest landscape. The terrain is a mosaic of dark green coniferous forests, lighter green deciduous areas, and brownish patches of cleared land or dry vegetation. Several small, irregularly shaped lakes are scattered throughout the landscape, reflecting the sky. In the foreground, there are distinct rectangular patterns in the forest, possibly from logging operations. The background shows rolling hills and more distant forested areas under a clear sky.

Thank You