S9: Vulnerability and Resilience:

Adaptation through Resilience Strengthening

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In the next 15 minutes…

- Characteristics of climate change **adaptation**
- **Resilience** as a practical focus for adaptation decision making under uncertainties

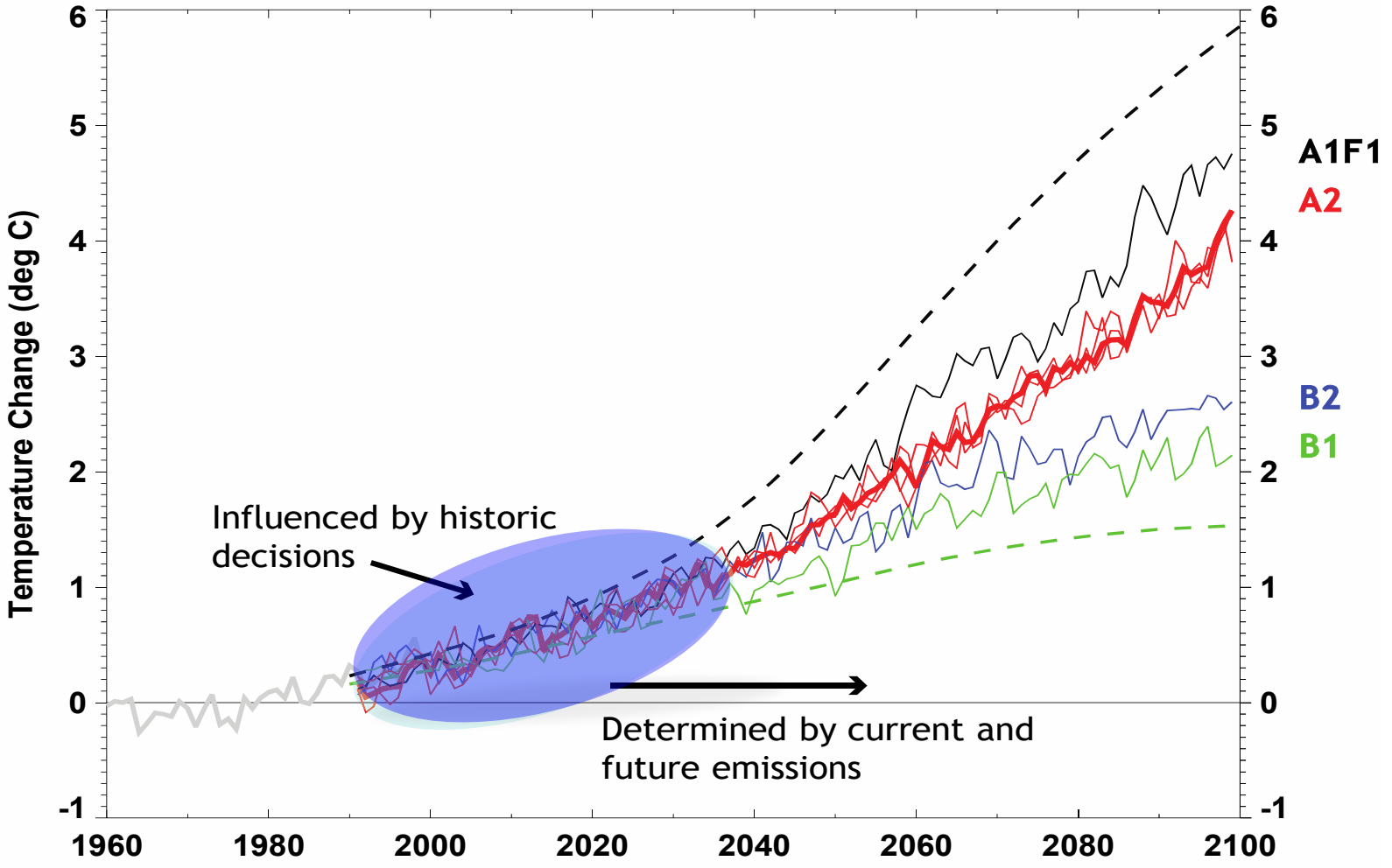
Adaptation to Climate Change

Mitigation and adaptation are integral parts of an effective climate change response.

	Mitigation	Adaptation
Focus	Cause	**Consequences**
Nature	Public health	**Medical treatment**
Benefits	Global, long-term	**Local, immediate**
Reason to act	Obvious	**Subtle**
Cost	Low to begin with	**Initial investment often high**

Adaptation to Climate Change *(cont.)*

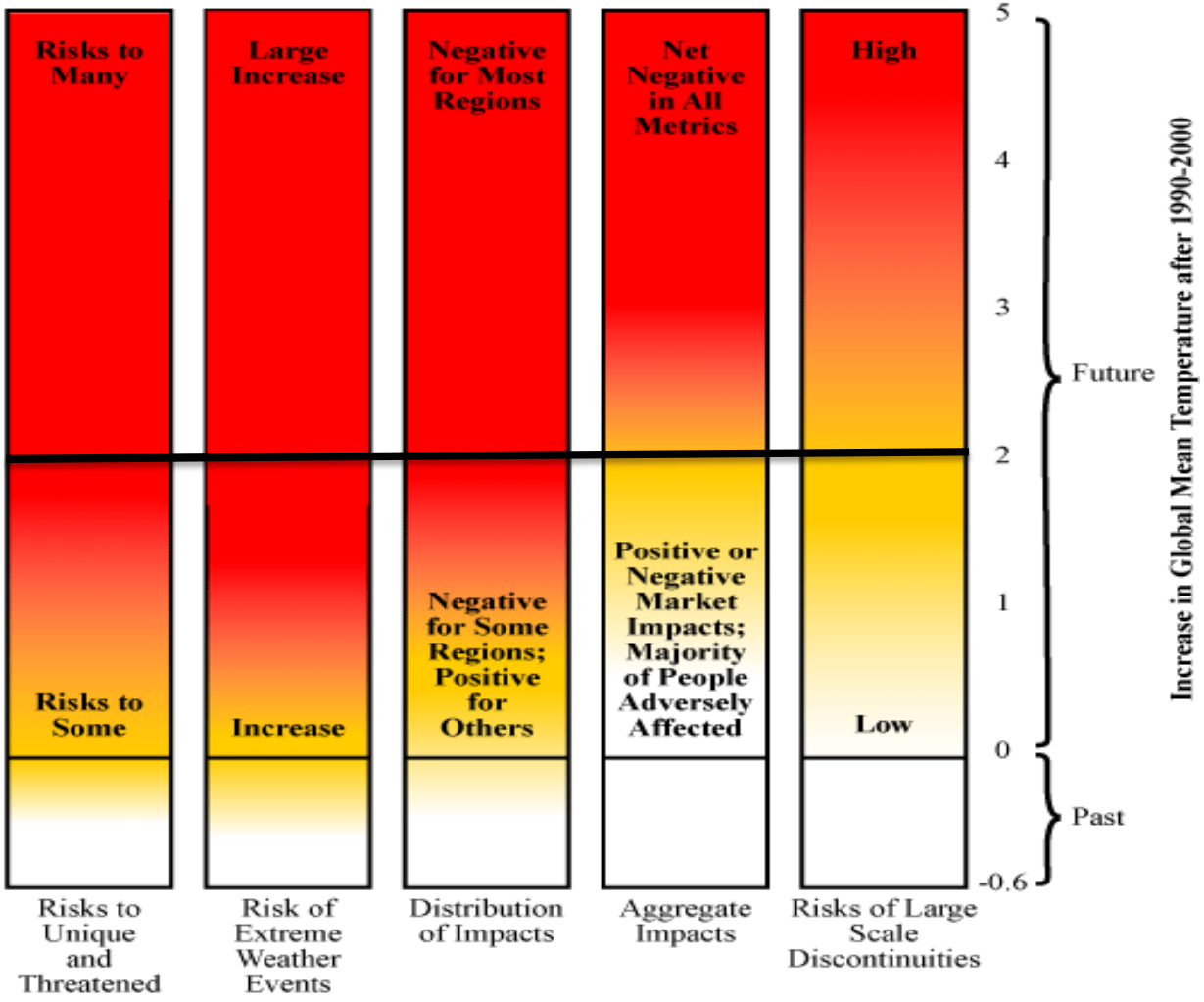
Even with the most ambitious and successful mitigation efforts, some climate change is inevitable.



Source: UKCIP02 Climate Change Scenarios

Adaptation to Climate Change *(cont.)*

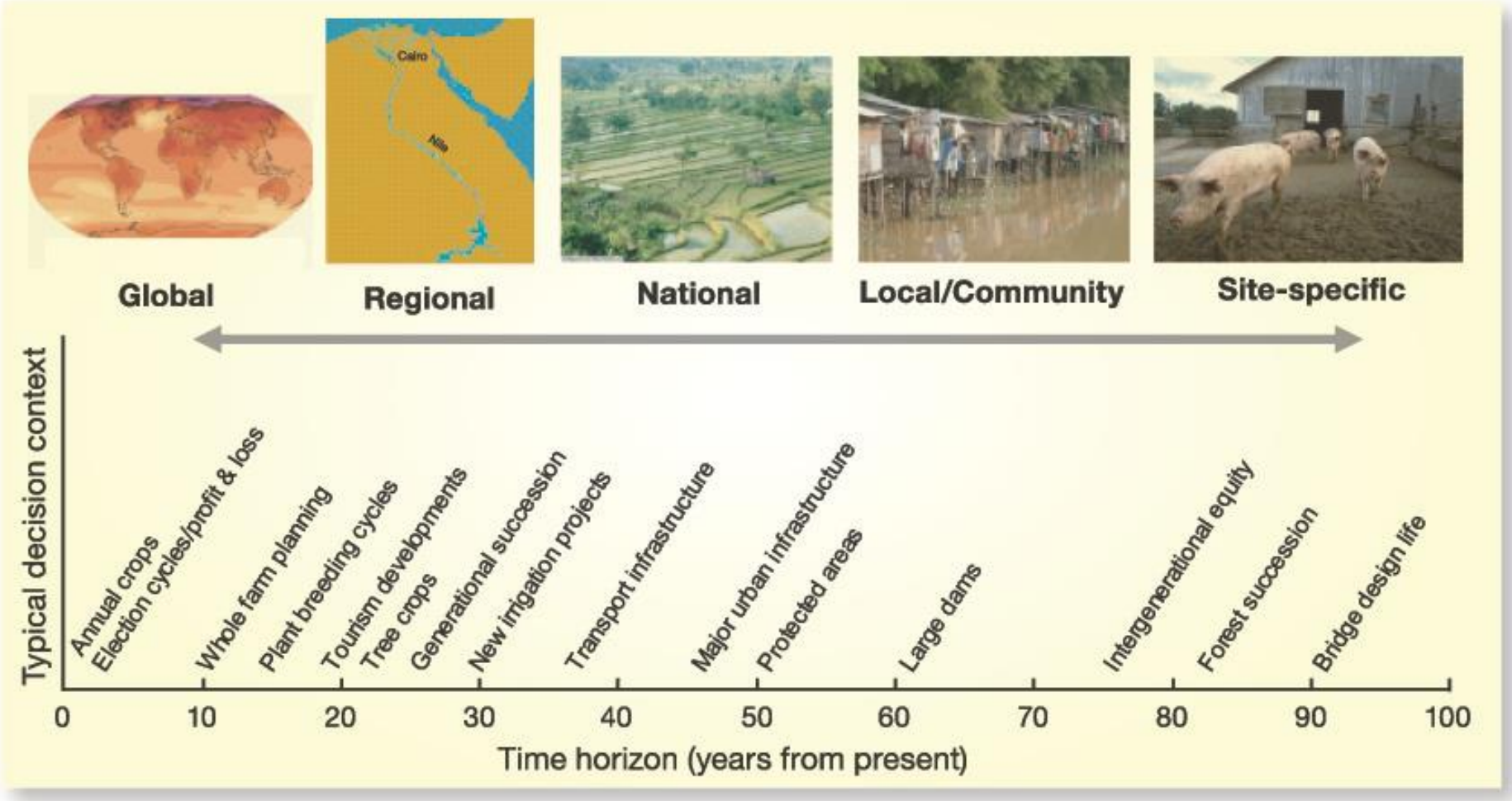
And, there is already sufficient *reasons for concern*…



Source: PNAS, 2009

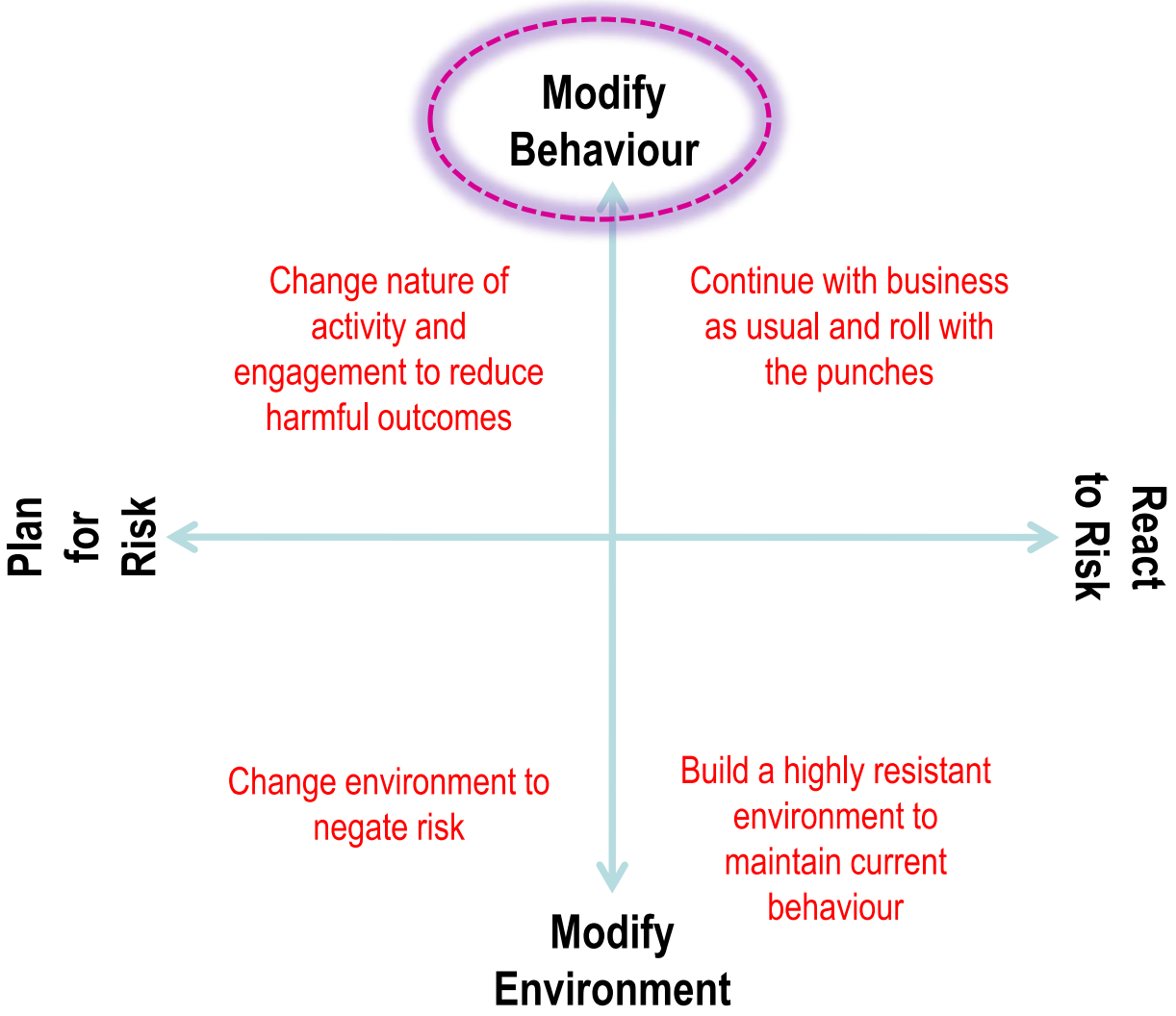
Adaptation to Climate Change *(cont.)*

Adaptation is complex: multi-scale, multi-sector, multi-stakeholders, decision-making under uncertainties



Adaptation to Climate Change *(cont.)*

Possible ways of thinking about adaptation…



Source: R. Jones (2012)

Adaptation to Climate Change *(cont.)*

Possible Frameworks for Designing Adaptation (…and mitigation) Strategies

- **The precautionary Principle (PP)** – to avoid "dangerous" climate change impacts;
- **Cost-Benefit Analysis (CBA)** – to maximize the generalized welfare function;
- **Risk Assessment and Management (RAM)** – to identify critical thresholds, probabilities, risk cultures, evidence-based policies

It would have been good if we knew
What exactly to adapt to, **where**, by **how much** and by **when**?

Adaptation to Climate Change *(cont.)*

But, there are formidable uncertainties…

Emissions — Uncertainty in socio-economic, technological pathways

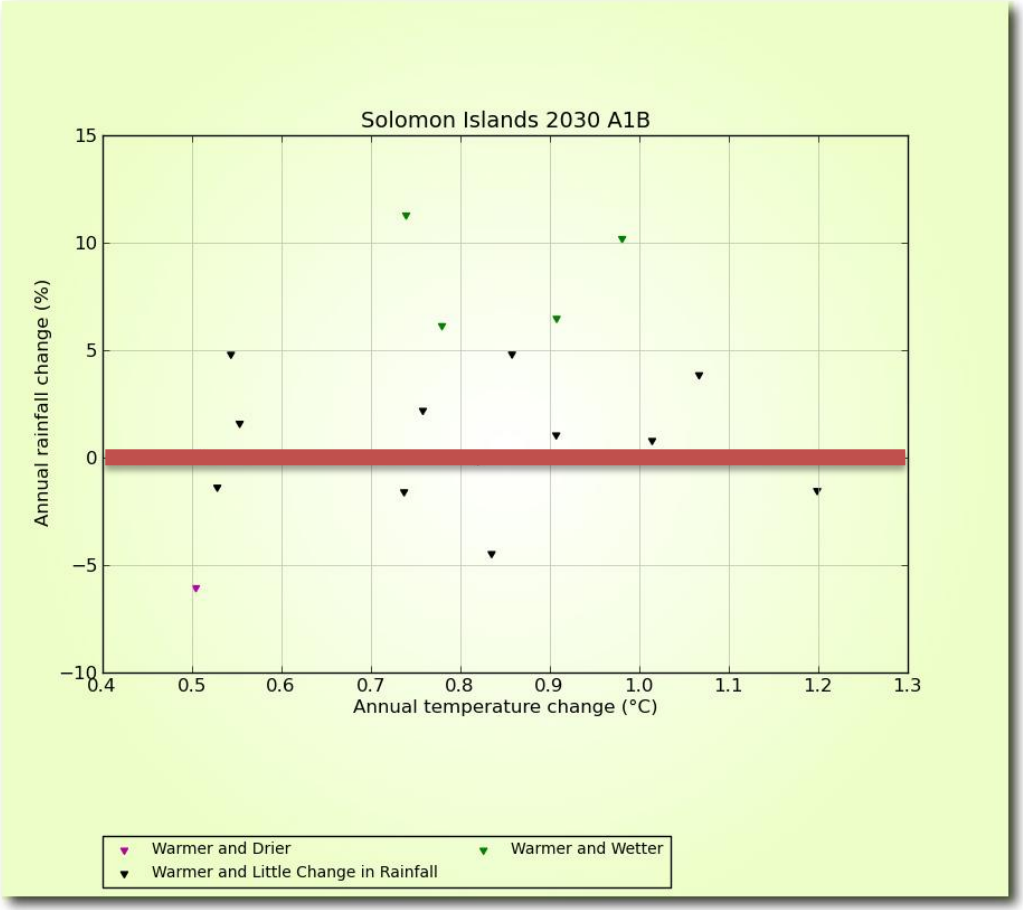
Concentrations
CO_2, methane, sulphates, etc. — Uncertainty in carbon cycle and feedbacks

Global climate change
Temperature, rainfall, sea level, etc. — Uncertainty in climate models

Regional detail
Mountain effects, islands, extreme weather, etc. — Uncertainty in regionalization procedures

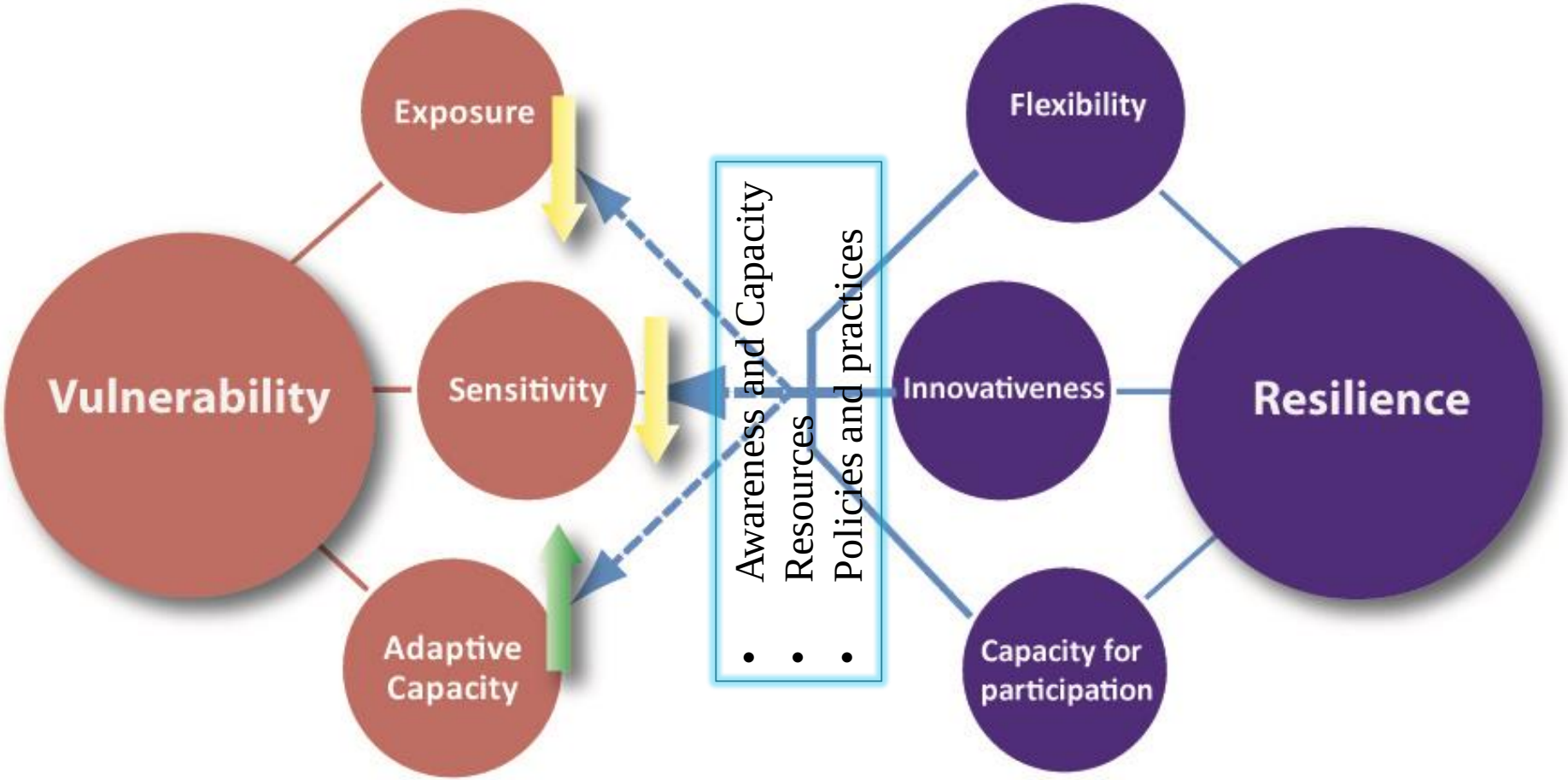
Impacts
Water resources, food supply, etc. — Uncertainty in impact models

Source: Adapted from R. Jones et al. (2003)

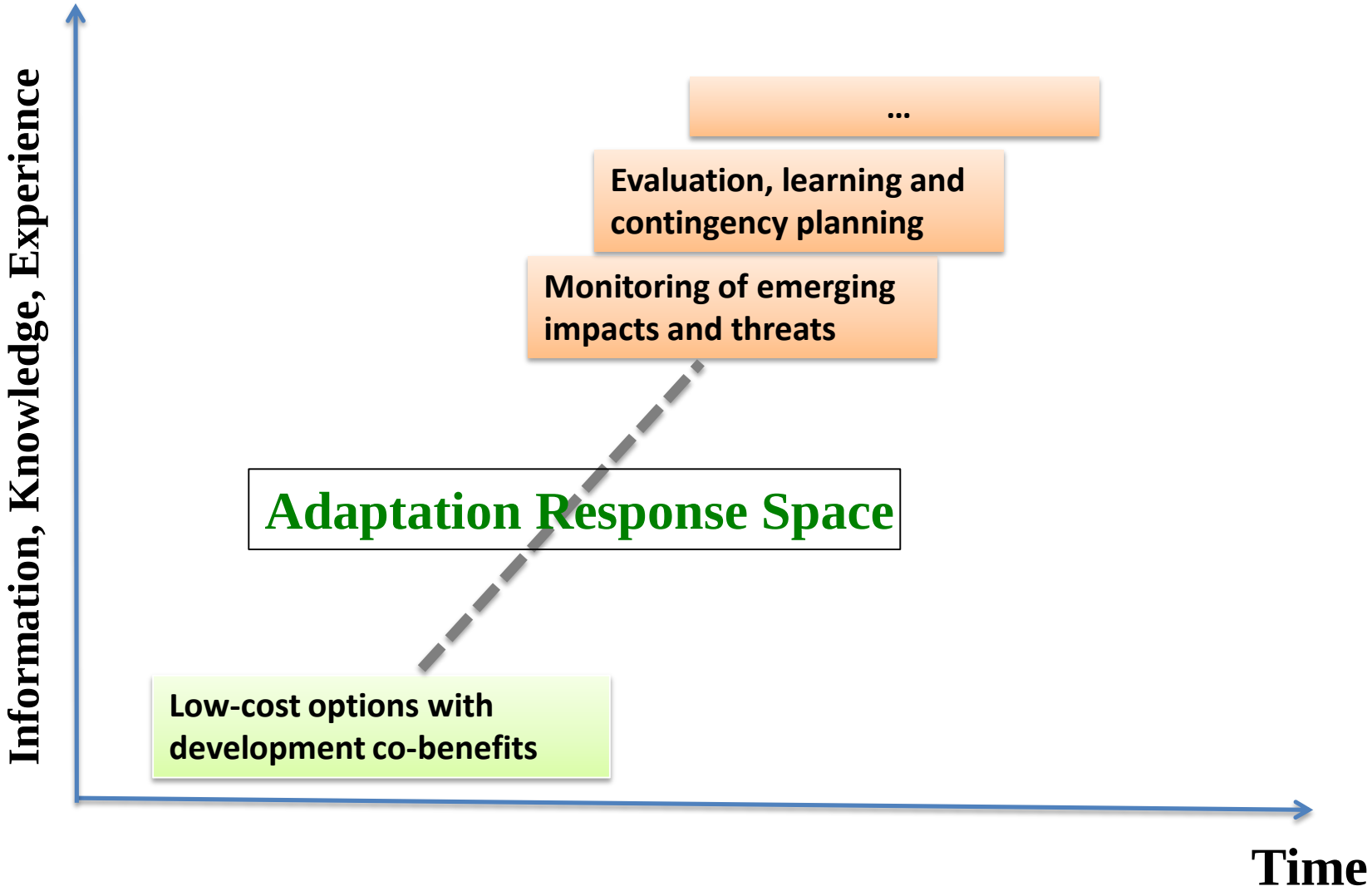


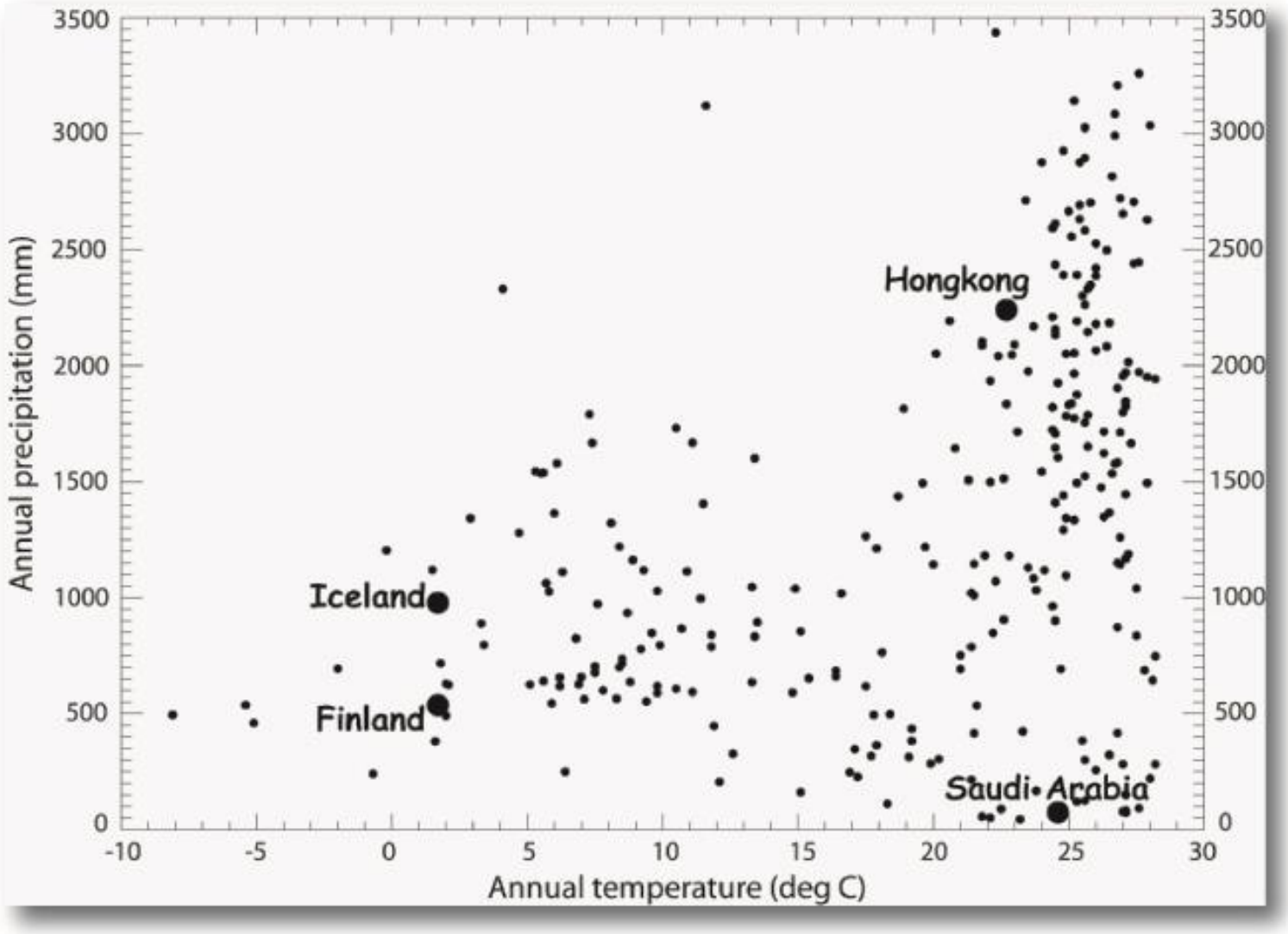
Source: PCCSP (2012)

Resilience as a practical focus for adaptation decision making under uncertainties



Resilience as a practical focus for adaptation decision making under uncertainties *(cont.)*





Resilience is achievable…

Thank you!

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