Dynamic Adaptive Pathways Planning

Integrating adaptation and mitigation into the transition

Judy Lawrence

New Zealand Climate Change Research Institute
Victoria University of Wellington
Why is adaptation part of the transition?

• Emissions already in the atmosphere commit us to ongoing warming and impacts today and those not yet felt from that warming

• Impacts like sea level rise keep going for centuries because of the lag time in the oceans

• We need to be prepared for even higher sea levels and the ongoing change that bring compound and cascading impacts

• Some mitigation actions can exacerbate impacts making adaptation more difficult/costly and some adaptations can increase emissions

• Large cost burden (already) and ongoing that affects governments and business
D3.3. A mix of adaptation and mitigation options to limit global warming to 1.5°C, implemented in a participatory and integrated manner, can enable rapid, systemic transitions in urban and rural areas (*high confidence*). These are most effective when aligned with economic and sustainable development, and when local and regional governments and decision makers are supported by national governments (*medium confidence*)
D3.4. Adaptation options that also mitigate emissions can provide synergies and cost savings in most sectors and system transitions, such as when land management reduces emissions and disaster risk, or when low carbon buildings are also designed for efficient cooling. Trade-offs between mitigation and adaptation, when limiting global warming to 1.5°C, such as when bioenergy crops, reforestation or afforestation encroach on land needed for agricultural adaptation, can undermine food security, livelihoods, ecosystem functions and services and other aspects of sustainable development (high confidence)
What is adaptive planning?

Adaptive planning supports decision making under uncertainty & change “invest not too little nor too much, and not too early nor too late” (adaptive plans)

Adaptation Pathways provide insights into options (lock-in potential and path dependency) enabling short-term actions while keeping options open for adaptations later and for changing path

Adaptation Thresholds (policy use-by date) helps identify when to take actions at earliest or at latest time using signals (warnings) and triggers (decision points) before the threshold

Monitoring plan and Contingency actions help to be flexible and stay on track with objectives and re-set plan if a major event

Adapted from Haasnoot et al 2013
Highest scenario: derived from Kopp et al. (2014); rest are IPCC projections, but extended using K14
Why do we use adaptive planning?

If we don’t we lock-in existing exposures to risk and raise expectations of ‘safety’ and increase adjustment costs in the future for foreseeable hazards and risk

Decisions have to be made under conditions of **uncertainty and changing risk** on actions that persist over long timeframes... across organisations and actors... interdependent scales of governance

This requires processes and practices that fit the problem space (uncertainty and changing risk dynamics)

AND

The mediation of different values and preferences **today and for future generations**
What questions do we ask?

- Will the action meet the long term objective?
- Will it increase or decrease exposure to the changing risk?
- What combination of options will give the greatest flexibility?
- What are their side effects? (e.g. do they increase emissions?)
- What other measures support the actions? (e.g. warning signals and decision triggers, planning rules, information)
Dynamic adaptive pathways planning (DAPP)

- **Dynamic** – ability to respond to changing conditions and perceptions
- **Not dependent on time** – focuses on **thresholds**
- **Mix of short-term actions** and long-term **options** – to avoid locking in inflexibility
- **Stress test options** versus 4 SLR scenarios
- **Anticipatory** (to avoid adaptation threshold) rather than reactive
- **Timely adaptation** by monitoring early signals and triggers (decision point)

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After Haasnoot et al. (2013), Hermans et al. (2017)
DAPP- step by step

1. Describe system, objectives, uncertainties
2. Assess vulnerability: adaptation thresholds (AT)
3. Identify actions and assess AT conditions and timing
4. Develop and evaluate adaptation pathways
5. Design adaptive plan: short-term actions, long-term options and adaptation signals
6. Implement the plan
7. Monitor: AT approaching? Actions or reassessment?

Source: Deltares 2018
Iterative learning-based approach

“We make short-term decisions. Using DAPP showed we can make long-term decisions by anticipating and adjusting”

“We experienced uncertainty and could chart a pathway”

“We got better results through negotiation with the other groups”

- Shared understanding of system functioning
- Adaptation that is flexible and adaptive over time
- Agreed pathways through conversations
- Can adjust decisions as conditions change
- Builds legitimacy, credibility and relevance
Enablers for adaptation

Understanding of the nature of climate change impacts
  Dynamic and ongoing
  Uncertainties
  Different types of impacts (events/slow/compound/cascading)

‘Fit for purpose’ policy frameworks and plans
Capability to use tools and frameworks
Consistently applied practice

An engaged community at the start and ongoing
New institutional arrangements
Leadership to drive changed practice
Funding and incentives
Adapting to climate change in NZ

Source: CCATWG Recommendations 2018