What are adaptation pathways?

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ASSAR Webinar - “Adaptation pathways: From concept to Practice”
Outline

• What are adaptation pathways?
• Why an adaptation pathways approach?
• Adaptation pathways for context?
• Emerging principles for adaptation pathways
“Pathways” is a powerful metaphor

- Understood across cultures, worldviews and disciplines
- Useful for creating narratives explaining changes over time

A conceptual framework

- Used to help people diagnose, frame and visualise the consequences of changes and responses over time

An analytical and learning approach and process

- To inform strategic, adaptive planning and decision making under uncertainty
Adaptation Pathways

The Thames barrier

Reeder and Ranger (2011)
Adaptation pathways – The Rhine Delta

Hierarchist Perspective: Large government role, controlling
Egalitarian Perspective: protect environment, equity
Individual Perspective: market-driven society, small government role

Haasnoot et al., (2013): Dynamic adaptive policy pathways
Adaptation Pathways of socio-ethnic groups

Established Romanians

Saxons

(Câmpeanu & Fazey, 2014)
Pathways of evolving socio-technical systems

Breach of acceptable risk

Acceptable risk

Flexible adaptation pathway

Rosenzweig & Solecki (2014)
Local adaptation pathway for Lakes Entrance

Start

Trigger 1
Inundation of the Esplanade for more than 5 days in a year, causing frequent and detrimental disruptions to the infrastructure necessary for the orderly functioning of the town.

Step 1
Low-cost and low-regrets activities that minimize present risks, prepare for future actions, and minimize the exposure of new assets to future damages.

Step 2
Stringent controls over new developments, and steps to prepare for the relocation of critical infrastructure and habitable dwellings to more elevated parts of the town.

Step 3
Managed relocation of all low-lying critical infrastructure and habitable dwellings to more elevated parts of the town.

Trigger 2
Two 1.8 m floods in a year, impacting on the viability of all critical infrastructure and habitable dwellings below 1.8 m above mean sea level.

Trigger 3
A breach of the barrier dune such that ocean waves break on the town, very likely leading to permanent inundation of low-lying areas of the town.

(Barnett et al. 2014)
Consistencies across all pathways approaches

- Designed to **incorporate flexibility** into planning to deal with uncertain often novel change
- Have **learning** as a key objective and underpinning process
- Based on understanding of **scenarios, thresholds, adaptation tipping points, decision triggers, and decision lifetimes**
- Focus on **decision makers** or **decision processes** as opposed to geographical regions
- Guided by the goals of **avoiding maladaptation** and staying within **boundaries of acceptable risks**
- Can be translated into **visual aids** such as route maps for communication purposes
Why an adaptation pathways approach?

- Widely understood across cultures and disciplines
- Powerful visualisation tool of interdependencies between current decisions and future uncertain changes
- **Decision / actor focused** in order to:
  - Ensure the constraints and agency of actors is considered;
  - Recognise multiple subjective, often contested, pathways exist
  - **Overcome decision paralysis often created by problem-focused approaches** (e.g., risk and vulnerability assessments)
Adaptation pathways for context?

Voß et al., (2007) Environmental Policy and Planning
Adaptation pathways for transformation

Mean Global Warming (°C)

- MEP2030
- A1FI-GaR
- MEP2010 (Overshoot)

Runaway
Stabilisation
Recovery

Adapted from Stafford Smith et al. 2011
Adaptation pathways for transformation

Global mean temperature change

°C relative to 1986–2005

°C relative to 1850–1900, as an approximation of preindustrial levels

2003 - 2012

Level of additional risk due to climate change

Undetectable Moderate High Very high
Adaptation pathways for transformation
Adaptation pathways: As a diagnostic tool

Adaptive landscape, affected by changing climate but also other drivers and other actors’ responses

Wise et al. (2014). Global Environmental Change
Adaptation pathways for transformation

Current climate compatible options

Future climate compatible options

Environmental change

Now

Future

Adapted from Dunlop and Ryan (2016)
Adaptation pathways for transformation

Capacity to think about and understand how different the future might be. “Climate-ready”

Current climate compatible options

Capacity to identify, plan and make different decisions. “Adaptation pathways”

Future: 1. Ecological change 2. Different objectives 3. Different management

Future climate compatible options

Environmental change

Adapted from Dunlop and Ryan (2016)
Decision context matters

- Values
- Knowledge
- Rules
- Decisions
Adaptation pathways for transformation

Capacity to identify, plan and make different decisions. "Adaptation pathways"

Capacity to think about and understand how different the future might be. "Climate-ready"

Current approach

- Governance:
  4. Diagnose barriers to adaptation
  5. Actions to strategically overcome barriers
  6. Timing

Future approach

Future:
- 1. Ecological change
- 2. Different objectives
- 3. Different management

Now

Environmental and social change

Future

Adapted from Dunlop and Ryanb (2016)
Adaptation pathways for context?

The choice of adaptation pathways approach is influenced by:

1. The capacity of stakeholders (resources, experience, trust)
2. The projected or expected magnitude of change
3. The levels of uncertainty (real and perceived) about change and ambiguity in goals
4. The numbers of affected stakeholders across jurisdictions
5. Barriers and opportunities to decision making – rules, values and knowledge
Adaptation pathways principles

• Focus on decisions or decision makers and understand their context
• Monitor and *learn* from responses and environmental changes (preferences/values, tipping points, thresholds, path dependency)
• Focus on linking long-term climate implications to immediate needs without closing off options (‘act in spite of uncertainty’)
• Develop new ways of thinking about / imagining the future under unprecedented transformational change
• Expect to tackle systemic (vrk) causes of vulnerability while being aware of the ‘mainstreaming-transformation’ paradox
• Expect, understand and plan for the politics of multiple subjective pathways
Thank you

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