Climate Change: Connecting Knowledge and Action

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Global temperatures keep rising
Variability of impacts likely to increase

Porter et al. 2014
• Increased asset base and value
• Increased exposure
• Increasingly global impacts from regional events
• Perhaps increased frequency, degree and changes in location of extreme climate events due to climate changes
• Perhaps changes in location of extreme climate events
• Increased expectations of science by stakeholders

Howden et al. 2007, 2013
Most climate change studies do not include variability in their analysis. 

Porter et al. 2014
The human mind is not equipped to deal with climate change…

‘If you were to design a problem that the mind is not equipped to deal with, you know, climate change would fit the bill. It's distant. It's abstract. It's contested.’

Dan Kahneman in *Hidden Brain*, 2018
The human mind and climate change

Distant
- Time – impacts decades away (or not)
- Space – we talk about the Arctic sea ice

Abstract
- Invisible – cannot see GHGs
- No reference point – 2°C, ppm
- Rare – trace amounts of GHGs

Contested
- Uncertainty – confidence intervals v. reality
- Politicised – challenges social order
- Conflictual – always about what do others do
- Painful – favoured solutions cause losses
• ‘Should climate change occur in part via a result of more frequent El Niño or La Niña events or other large-scale circulation changes, then linking management decisions to seasonal climate forecasts would allow decision-makers to ‘drift’ in the correct direction’

• This would be enhanced with more skillful seasonal climate forecasts
Heat stress frequency: global

Mora et al. 2017
Forecasts plus an action plan

- Inform, educate and empower people
- Mobilize community partnerships and action to identify options and respond in a timely way
- Develop policies and plans that support individual and community health efforts
- Link people to needed personal health services and ensure the provision of health care
- Ensure competent public and personal health care workforce
- Evaluate effectiveness of the action plan

Frumkin et al. 2008
Climate-centric approach

- Economic development
- Food
- Trade
- Water
- Livelihoods
- Settlements
- Biodiversity
- Infrastructure

Climate change
The knowledge injection model fails
• Often scientists have a poor understanding of stakeholder needs

• Only 23% of producers said the current focus on downscaled GCM data was providing them with climate information that they wanted in terms of variables

• 77% of producers said, for climate change, that they wanted climate information on the 5 to 20 year timeframe not the multi-decadal timeframes currently delivered

Dunne et al. 2015
Decision or values-centric approach

- Decision
- Values
- Aspirations

- Economic development
- Climate risk
- Trade
- Sea level rise
- Livelihoods
- Health
- Biodiversity
- Education
Participatory action research

- The active involvement of stakeholders in generating and using science
- Relevant, credible and legitimate research
- Increases the pool of knowledge and resources
- Key difference is in the attitudes of researchers: acknowledging that stakeholders and solutions to their problems are the primary reasons for the research
- Developed in the 1940’s in response to exclusion of many voices and sources of knowledge

Few et al. 2007; Cash et al. 2006; Cornwall and Jewkes 1995; Lewin 1946; Tax 1958
Participatory action research

• Establish the stakeholders values, goals and climate-related decisions before thinking about the climate science

• Start with what is known (past and present) about climate risk before exploring the future

• Be clear about the public values vs science values that you are responding to, and make decisions consistently in terms of project design and implementation

Howden et al. 2007, 2013
Social aspects and psychology

- Social, psychological and institutional aspects are crucial in terms of:
  - motivation
  - capacity
  - intent
- But also in relation to barriers and limits to action
- Adaptation journey – people start with the technical and tactical but end up focusing on strategy and values
- Leadership – can come from anyone, anywhere
- Narratives can be powerful with these journeys
Seasonal climate forecasts tend to be used to fine tune existing systems.

Focus on existing systems only may result in maladaptation – and in missed opportunities.

Need to consider more systemic and transformational adaptations – increasingly so as changes continue.

Howden et al. 2010; Park et al. 2012; Rickards and Howden 2012
Adaptation spectrum and types of science

Incremental

Transformative

Technology + $ + Physical

Institutional + Social + Psychological

Increasing complexity, uncertainty and risk
• Climate changes already happening
• Seasonal and other climate forecasts have a role in adaptation
• But need to be tightly integrated into an action plan
• Participatory approaches and social science can help identify what is important and adoption pathways
• Over-reliance on climate forecasts can however lock-in systems to their current state rather than exploring alternative options
• Build capacity for proactive, strategic decision making
Thankyou

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