



The PLAN project on climate adaptation: Where do values fit in?

Karen O'Brien

Department of Sociology and Human Geography

University of Oslo, Norway

Overshoot, adapt and recover

We will probably overshoot our current climate targets, so policies of adaptation and recovery need much more attention, say **Martin Parry, Jason Lowe and Clair Hanson**.

If policy-makers are to reach international agreement on greenhouse-gas emissions at the United Nations Framework Convention on Climate Change conference in Copenhagen in December, they need to be optimistic that their decisions could have swift and overwhelmingly positive effects on climate change. The reality is less certain, but no less urgent.

Even the most restrictive emissions policies proposed to date leave a sizeable chance that significant climate change will occur over the next several decades, probably surpassing the 2°C warming target adopted by the European Union and held by many as a dangerous limit beyond which we should not pass¹. We must



policy would mean continual 3% year-on-year emissions reductions that could, after several centuries, lead to greenhouse gas concentration of about 350 parts per million (p.p.m.) of carbon dioxide equivalents. A new and useful approach for quantifying long-term emission targets is presented in two new pieces of work published in this issue (pages 1158 and 1163).

We have simulated the outcomes of this 3%-per-year reduction strategy with a simple Earth system model² and have plotted them on a table of projected effects that we constructed, with other Intergovernmental Panel on Climate Change Working Group II authors, for the IPCC 2007

With the same 3%-per-year long-term emissions reductions but a slower start, peak temperatures would rise substantially and the overshoot would extend. For example, delaying mitigative action by ten years and so reversing emissions trends by 2025 would raise peak median temperature by about 2.5 °C; delaying by a further ten years (a 2035 downturn) would mean a rise of about 3 °C, with much longer recovery.

“We should be planning to adapt to at least 4 °C of warming.”

The damage from these levels of warming could be substantial, placing billions more people at risk of water shortage and millions more at risk of coastal flooding. To avoid such damage will require massive investment

Adaptation to climate change

- Adaptation is not just a “list” of activities – it is a social process;
- It takes place through actions that reduce vulnerability (or enhance resilience) in response to observed or expected changes in climate and climate variability;
- Influenced by exterior, objective factors (systems and behaviors), and also by interior, subjective factors (culture, values, beliefs);
- Adaptation is already taking place, but seldom in response to climate change alone;
- Not all adaptations are sustainable, and some may increase the vulnerability of others, and of future generations.

PLAN: Overarching research questions

- How do social processes influence the capacity to adapt to climate change?
- What are the limits to adaptation as a response to changing climate conditions?
- What are the implications of these limits for human security?

Six Integrated Research Projects

1. Contexts for Climate Change Adaptation in Norway



2.The Process of Local Adaptation



3. New Public Management Reforms and the Energy Sector



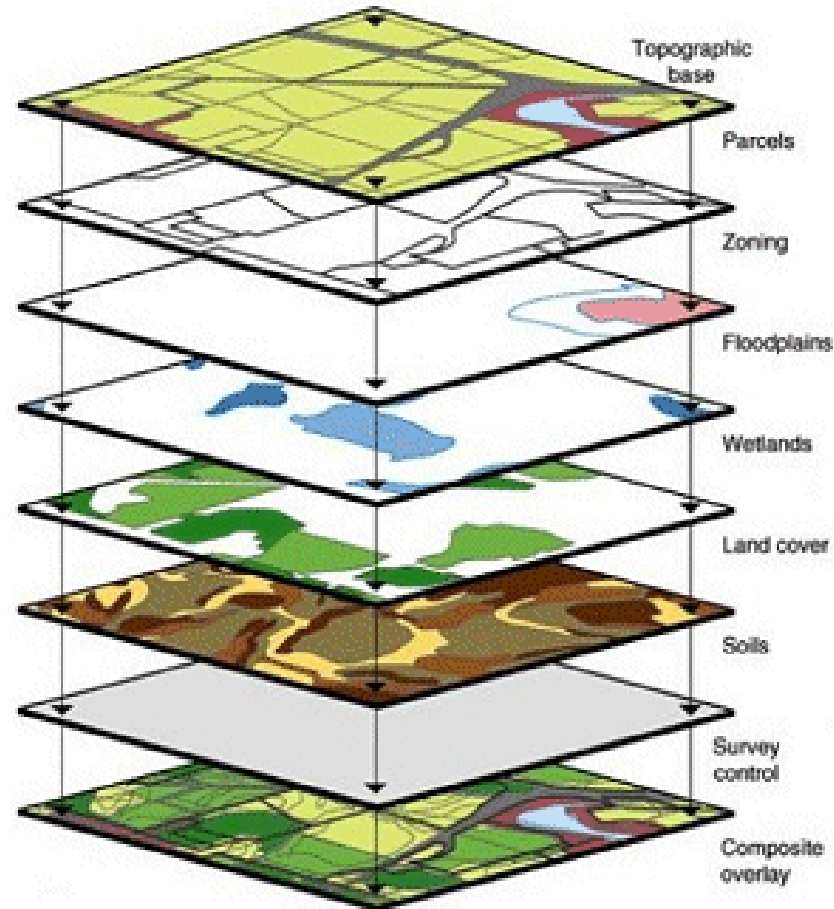
4. Urban Planning and Waterfront Development



5. The Limits to Adaptation as a Social Process



6. An Innovative Geographic Information System (GIS)



Where do values fit in?

- Loosely used to refer to a wide variety of concepts, including interests, pleasures, likes, preferences, moral obligations, desires, wants, goals, needs, aversions, and attractions;
- Something intrinsically desirable;
- Despite great cultural diversity across the globe, the number of human values is small;
- Values may be shared, yet they are expressed uniquely, depending on culture and context.

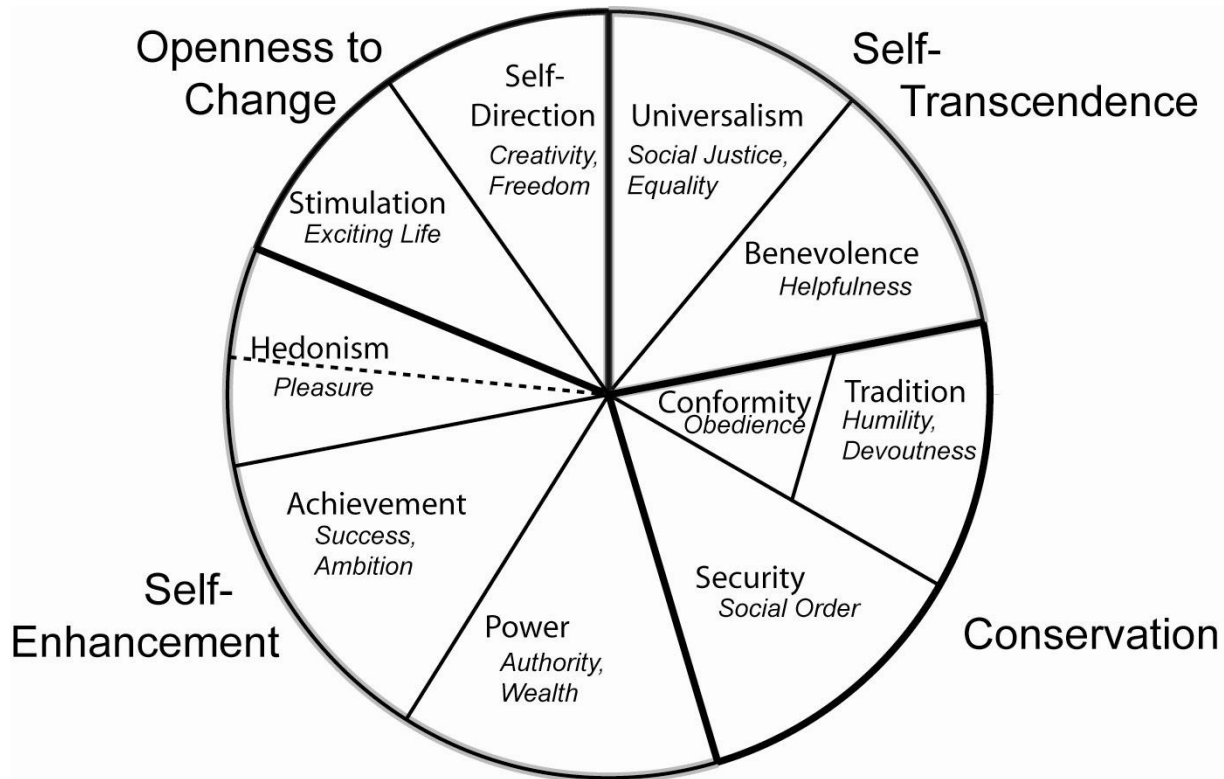


Figure 1: Theoretical model of relations among ten motivational types of values (Schwartz 2006)

Values and Worldviews

- People's conscious beliefs about the world (worldviews), are closely linked to value priorities and to cognitive structures (subject-object relationships);
- Traditional, modern and postmodern worldviews are most dominant in the world today;
- How do worldviews and values influence prioritized adaptations?

Traditional values

- Snow cover is important to local and national identity
- Prioritized adaptations might preserve heritage, tradition, and identity (preservation of cultural landscapes and a sense of place)
- Challenge: to transform livelihoods *and* maintain a sense of community



Modern values

- Snow cover as a medium for winter sports (an important economic sector)
- Prioritized adaptations might focus on snow-making technologies, indoor snow domes, artificially cooled ski tracks
- Challenge: reconstruct or reinvent identity (identify new or niche markets)



Post-modern values

- Snow cover as a component of ecosystem integrity; distant impacts of climate change also a concern
- Prioritized adaptations might focus on adaptive management, building resilience, promoting sustainability.
- Challenge: promote mitigation as a form of adaptation



Measuring Values: Q methodology

- Systematic analysis of attitudes towards and views about a topic; origin: psychology (Stephenson 1953), political science (Brown 1980)
- Hybrid mixed method: qualitative-quantitative
- Uses forced-choice ranking of set of statements (or images) on a Likert-type scale
- Uses correlation, factor analysis and rotation to produce typified response sets to the topic in question

Outcome: Factors that represent the *types* of attitudes held by the participants on the topic

Example outcome

Q sort on responsibility for climate change in western Canada

- 4 Factors represent the types of attitudes on the topic
 - The Communitarian: “We are all responsible by participation in our western society.”
 - The Systemist: “Climate change is only a symptom of a systemic problem of our society”
 - The Sceptic: “Climate change is nothing more than environmentalists’ scaremongering.”
 - The Economist: “We just need to tax gas guzzling vehicles to deal with climate change.”

Attitudes towards adaptation

- What types of values and worldviews are represented within our study, and among the population in Norway?
- How do these different worldviews influence attitudes towards adaptation, and prioritized strategies?
- Where might we expect to find value conflicts in adapting to climate change?

- Can climate change responses take into account a range of values that correspond to diverse human human needs and multiple perspectives and worldviews?

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- *Whose values count?*

How does it work?

- Assembly of statements that represent the 'concourse' on a topic – all possible attitudes and views; sourced from
 - Interviews
 - Literature
 - Public media
- Participant is instructed to rank statements into a forced-choice grid
 - Prioritising of strongly agree/disagree statements
 - Statements eliciting indifference form the middle ground

