

## Environmental Adaptation as a Developmental Process

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### Introduction

Some scientists predict that temperatures could rise more than 11°F over the next 100 years (The National Academies, 2008). The changing climate will have significant effects on sea level, frequency and intensity of storms, ice cover, and general ecosystem change. As humans continue to impact the landscape, carbon dioxide levels will continue to increase. In the United States alone, a recognition, desire, and commitment to the issues of climate change requires intervention within all levels of government. It requires resources to increase our scientific understanding of the issue and, by doing so, to inform policy. And it requires a personal and collective willingness to embrace a changing system and work together to build a low carbon society. While these public conversations responding to climate change have primarily focused on *mitigation*, our intention in this essay is to focus on effective *human adaptation*, both physical and psychological.

We cannot ignore the consequences of climate change, nor the inevitability that many communities will have to design adaptive strategies in response to it. Recently, President Obama established an Ocean Policy Task Force, which seeks strong public input as it develops policy recommendations to 1) ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems and resources, 2) enhance the sustainability of ocean and coastal economies, 3) preserve our maritime heritage, and 4) provide for adaptive management to enhance our understanding of and capacity to respond to climate change. Even with this Presidential Task Force in place, decision-makers are in the difficult position of needing to make highly complex and contentious decisions with incomplete knowledge and a deep sense of urgency.

This year, the National Research Council (2009) published *Informing Decisions in a Changing Climate* in which it noted that, “climate change will create a novel and dynamic decision environment.” This is primarily due to the severe uncertainties involved in understanding climate change-related hazards and the likely harm they will create. The complex and abstract nature of climate change negotiations can provoke a sense of vulnerability and being “in over their heads” among stakeholders. This often leads to conflict among stakeholders about the very essence of the problems. While progress has been made in environmental conflict resolution research and practice, the scale, scope and

complexity of climate change issues are daunting and pose new challenges to the evolution of multi-party practice. This essay is a response to these challenges.

Our intention here is to introduce the reader to the unique complexity of climate change adaptation decision-making processes, and to assert that the design of these decision-making processes, if they are to be truly collaborative and democratic, must consider the complexity of the meaning-making capacities and the competing commitments of the decision-makers themselves. We begin our discussion with the concept of a 'hidden curriculum' of climate change, then introduce Constructive-Developmental theory and meaning-making, discuss implications for complex multi-stakeholder decision-making processes, and briefly illustrate these concepts with an empirical case study.

### ***Adaptation - The Hidden Curriculum of Climate Change***

As the risks and uncertainty of climate change become more complex and intertwined with every aspect of our lives as private citizens, public servants, business owners, and educators, the need for reasoned negotiations and collaborative decision-making between and among all levels of public and private sectors becomes increasingly urgent. In addition, while many scientists, educators, and practitioners are aware of the burgeoning risks and uncertainties of climate change, many more ordinary citizens are still caught in the debate about whether or not climate change is real, denying clear scientific data. Others acknowledge the reality but do not consider the risks in their everyday lives. The result is large populations of citizens with very robust *Immunities to Climate Change*: "It's not my problem, the government/industry/ scientists will deal with it." "I'm just one person, what can I do about it?" "I'll be dead by the time anything really changes, so why should I care?" Much of the denial may be attributed to people's own "immunity to change" (Kegan & Lahey, 2009), the psychological system of hidden, competing commitments that prevents us from making the changes we profess to want to make. Cultures, communities, governments, and groups of all kinds have their own immunities to change, just as individuals do. Uncovering these competing commitments is essential if we are to successfully adapt to our changing climate and the risks and uncertainties that accompany it.

This, then, is the *hidden curriculum of climate change: Adapting to climate change requires more than simply changing our behavior in response to new information*. It requires understanding our own human place in the ecosystem, uncovering our competing commitments with regard to our lifestyle and environment, and transforming our relationship to both. While separating the people from the problem is, in many cases, an effective and appropriate way to respond to a conflict, we suggest that separating

the people from the problem of climate change will actually lead us down a more destructive path. We suggest that, with respect to global climate change issues, the people *are* the problem. Our hidden, competing commitments, i.e., our own internal conflicts about our sense of responsibility for our environment, are the problem.

*Simply changing our behavior is not enough. And having more information is not enough.*

Complex problems *require us* to adapt and change in response to them. But we have to change *the way we relate to and understand* the problem itself (Heifetz & Linsky, 2002). We literally have to *change our minds* before we can change our behavior—we have to change *the very structure* of how we think and feel about climate change, our participation in it, and our adaptation to it. Even with compelling information, most of us do not really change our behavior until we *change our minds* (Kegan & Lahey, 2009). Changing our minds is an evolutionary process (described below) through which we can uncover and understand our competing commitments, and allow the problem to solve *us*.

Every climate change related problem has an inherent task complexity (Commons & Pekker, 2008), and yet every problem-*solver* may not have the complexity of reasoning and critical thinking ability to adequately attend to, collaboratively negotiate and engage in highly charged, conflictual multi-party decision-making processes around it (Rosenberg, 2004). As the risks, social inequalities, and hazards associated with climate change become more complex, our ways of responding must keep pace. Developmentally informed decision-making processes can provide a powerful arena to support the continuing evolution of stakeholders' meaning-making, deepen their understanding of their own competing commitments, and create a more truly democratic decision-making process at the same time.

### ***Adaptation as a Developmental Process***

Adaptation is both the process and the outcome of a developmental journey. Constructive-Developmental Theory, a theory of lifespan development and our primary theoretical foundation, brings together two potent ideas: *constructivism*, i.e., the ways individuals *construct or make meaning* through their experience; and *developmentalism*, i.e., the ways in which *meaning-making becomes increasingly complex* through interaction with one's social environment. Constructive-Developmental Theory is very much an ecological approach to human development, taking as its data the increasingly complex and intertwined systems of the individual and his or her social, ecological, and cultural surround (Kegan, 1982).

Observable, definable milestones mark this journey of increasing complexity. Each milestone, which we call a “mindset,” reflects a unique meaning-making complexity and perspective-taking capacity. Each mindset builds upon and transforms its predecessor through adaptation to the individual’s environment, thus transforming both her *experience and understanding* of herself and her environment, and creating a distinctly new and more complex relationship between them: her perspective on herself *both in relation to and separate from* her environment becomes more complex.

This view of human development draws on its roots in biological science to conceive an open-system model that recognizes a dynamic environment within which we adapt and seek equilibrium. One primary feature of this concept is its emphasis on our ongoing engagement with the world around us (Kegan, 1982). This notion is consistent with Maturana and Varela’s introduction of autopoiesis (1972), a self regulating process through which living organisms *inevitably and constantly create and recreate themselves* in their ongoing engagement with a changing external environment. The ongoing process of meaning-making *is* this autopoietic process exactly: the increasing complexity of the meaning we make in and of our lives is inextricably linked to our engagement with and adaptation to our social and environmental surround (McGuigan & Popp, 2007).

The world we live in today, with its instant global communication, interdependent global economies, and trans-boundary natural resources, requires a capacity for understanding and managing complexity as we have never seen before. Problems and conflicts are rapidly becoming more complex, requiring an evermore complex approach to multi-party decision-making processes, analyses, responses, and solutions. When the complexity of the social and natural world exceeds our capacity to make sense of it, we find ourselves “in over our heads,” (Kegan, 1994) unable to effectively engage and adapt to the risks that our planet, and therefore we, its inhabitants, are subject to. Many stakeholders find themselves in this position. To effectively address and adapt to these risks, we need decision-making processes that attend to our growth as meaning-makers.

### ***Application - Case Study***

Consideration of individual adaptation and meaning-making complexity has received little attention in the conflict resolution field, the risk and climate change literatures, and in analytic-deliberative process literature (DeLauer, 2009; McGuigan & Popp, 2007; Ross, 2006). Thus, an important, and novel, component of our work is to more formally link the meaning-making perspective with both the literature and practice from these fields (Fischer & Biddell, 2007; Welp, 2007). Our case

study, which focuses on meaning-making in action in the Massachusetts Ocean Partnership, does just that (DeLauer, 2009).

The Massachusetts Ocean Partnership (MOP) is a broadly representative public/private partnership. MOP manages from an ecosystem perspective through a multi-stakeholder decision-making mechanism that is representative of a wide range of ocean interests including local, state and federal government, marine-dependent business and industry, conservation organizations, educational/scientific research institutions and others. The state of Massachusetts is now in its first phases of comprehensive, integrated ocean management. In these first phases, stakeholders and MOP participants are just beginning to conceptually grasp integrated management and to weigh its benefits and limitations with the interests of the individual, the collective group, the public, and the ecological systems being managed for public use. In this case study, DeLauer interviewed individual MOP participants and assessed the interview transcripts for meaning-making complexity. The next section illustrates the ways people with different mindsets orient to the MOP decision-making process.

### ***Mindsets and Climate Change***

We now present a minimalist view (due to space constraints) of the overarching characteristics of the mindsets within a collaborative decision-making process. Each mindset has inherent strengths and limitations, and needs to be supported in unique and distinct ways to fully participate in such a process.

#### ***Concrete Mindset***

Participants with a concrete mindset think in concrete terms—concrete rules, data, and a dualistic sense of the right versus the wrong way to approach climate change. Those with this mindset have difficulty with abstract ideas, and given the complexity of climate change problems, are limited in the ways they are able to participate in decision-making processes.

*I don't see the point of these meetings. We know we have to eliminate greenhouse gases. The Kyoto Accord told us how, so why don't we just do it? It's really not that complicated. You just get rid of greenhouse gases and we fix the problem. Period.*

A person with this mindset orients only to the concrete characteristics of a problem and the concrete actions associated with it. The process of deliberation will seem to one with this mindset to be just making things more complicated than they are.

### *Affiliative Mindset*

Individuals with an Affiliative mindset have a larger capacity to work with abstract ideas; however ambiguity, difference, and conflict pose significant problems for them. Their orientation is toward consensus, minimizing difference, and everyone being on board behind one authority. Implementing a mandate from someone in authority whom they trust is what makes most sense to them.

*I like the concept of democracy but it is very inefficient, but I am attracted to the whole autocratic approach. We need this person to just come in and be like, this is the way it is going to happen. Whoever writes the bill or passes it through the legislature – nothing is going to happen until they tell us to do it.*

Those with an Affiliative mindset need permission and motivation from an authority they trust, to embrace difference and face ambiguity in decision-making contexts. If this support doesn't exist for them, they may well disengage, feeling that the process is out of control and overwhelming. One participant notes that she looks to an authority figure in the room to understand what is going to happen next.

### *Self-Authoring Mindset*

Participants with a Self-authoring mindset orient toward their own internally generated authority, values, and standards. They welcome ambiguity, difference, and conflict as a way to understand and integrate the perspectives of others, and create a more robust decision-making process. Those with this mindset easily make sense of the temporal and spatial relativity of different climate change contexts.

*You try to make everyone understand the basis for decisions and you try to make the best social decisions possible and the ones you make today are not the same as the decision you would come to five years from now. Even with the same knowledge, society is changing so you can look at the same system and the same information at two different points in time and there you will come up with two slightly different answers.*

This participant demonstrates the capacity to see that one solution at one point might not work at another point in time or within another context. He understands how discrete issues may change the whole dynamic.

Understanding these differences in mindsets is essential to reframing our expectations of and support for decision-makers in the complex tasks we entrust to them.

## **Conclusion**

While it is clear that the problems related to climate change must be solved, we also believe that the challenge of climate change has the potential to *solve us*; that in the very midst of this global calamity, we are challenged to grow, to be transformed by our experience of nature – to adapt to a changing world. The moving from a problem-solving to a transformational perspective has been well chronicled by Bush and Folger (1994):

Rethinking the problem-solving orientation starts by questioning the premise that conflicts need to be viewed as problems in the first place. A different premise would suggest that disputes can be viewed not as problems at all but as opportunities for moral growth and transformation. (p. 81)

As the complexity and uncertainty of climate change issues increase, we must address the fact that greater complexities of mind among our citizens are necessary in order to understand, engage, and respond to these issues and each other in cooperative and collaborative ways (Ross, 2006). In being required to consider and integrate competing points of view, loyalties, priorities, and to try to find common ground, decision-makers are also required to adapt their own perspectives to accommodate the reality that as the risks and uncertainties of climate change become more complex, no one can stand in isolation. Multi-stakeholder deliberative processes can be excellent environments to facilitate adaptive changes and transformation in one's relationship to the problem. To do so, these processes must be framed and facilitated in such a way as to engage all stakeholders and all complexities of meaning-making.

Only when we have grasped the evolutionary nature of adult psychological growth will we be able to convene more effective multi-stakeholder processes to develop adaptive responses to climate change. Using a developmental perspective to make explicit the meaning-making complexities of the individual stakeholders, we can create a model of human systems interaction that can serve as the foundation for deep democracy and true collaboration in the midst of transforming ourselves and our relationship with the natural world.

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