

Water Scarcity and the Lifeworld

The Challenge of Perceiving Creeping Disasters

Based on a sociology of knowledge perspective, this article discusses water scarcity as a creeping disaster with regard to perceiving, defining, and adapting to it. It argues that a major challenge of creeping disasters is the perception of them in the sense that people have a limited stock of culturally and locality specific everyday knowledge. I.e. people make use of socially constructed patterns of understanding and acting within their environment, or, spoken with the concept of Schütz and Luckmann, lifeworlds, within which they can perceive and react to changes. If environmental changes such as water scarcity occur outside their lifeworld, people lack the mental models to respond to them. On the other hand, lifeworlds are also dynamic and allow for innovation and learning processes, making the lifeworld a fundamental resource in response to creeping disasters.

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Introduction

In a world in which one fifth of the population lives in areas with physical water scarcity (UN-Water 2006b: 4), it seems only appropriate that water scarcity is regarded as a global challenge with high priority on the agenda of international organisations. Water scarcity was the theme of the World Water Day 2007 and is the major topic of the Human Development Report of 2006. Water is essential for drinking, hygiene, for the production of energy and industrial goods, for ecosystems, and most of all for agriculture. When water is lacking for the provision of these needs of societies and individual livelihoods, the detrimental effect on people can certainly be called a disaster. Originally, the term disaster referred mainly to sudden events such as earthquakes or tsunamis. In recent discussions of e.g. global warming or desertification, however, "creeping environmental problems" which are "slow-onset, low-grade, long-term but cumulative over time" (Glantz 2006: 8) have received more and more attention and are also referred to as creeping

disasters (e.g. Earth Observatory 2000; Vlek 2005). Water scarcity can be such a creeping disaster. When water supply and demand diverge in a way that the gap between them becomes gradually wider, then water scarcity has not only arrived at a certain point, but becomes more and more severe over time. Such a gradual progression of water scarcity means that there is not an easily visible problem but that the disaster may be difficult to perceive and grasp at first, that it may evade a clear problem definition, and that adaptation to it may come too late.

Perception and Lifeworld

Unlike sudden disasters such as earthquakes, floods, or droughts, creeping disasters do not create major events that call immediate attention to the environmental changes they are based on. Instead, creeping disasters appear "to be not much worse today than yesterday, and the degree of change tomorrow is not likely to be much different than today" (Glantz 2006). This gradual onset of creeping disasters can make it difficult to perceive

them as trends, to understand the causalities involved in them or to anticipate their detrimental effect on the livelihood security of affected people. Bearing in mind that ecosystems are dynamic, environmental changes are taking place all the time. Through negative feedback mechanisms, ecosystems exhibit resilience towards external pressures and can often re-stabilise themselves within the boundaries of their dynamic equilibrium state for a long time. However, once positive feedback loops are mobilised by particular disturbances, they can suddenly reach a tipping point with the result of a collapse of the equilibrium and a consequent re-organisation. The ecosystem resulting from this re-organisation constitutes new system components and interaction processes and does not necessarily provide the same ecosystem services as the previous system.

In the case of creeping environmental changes it is often impossible to clearly define whether the occurring changes are fluctuations within the resilience amplitude of 'normal' ecosystem dynamics or whether the system is slowly drifting towards a tipping point. The involved feedback

mechanisms are complex and the exact moment of a tipping point is mostly unpredictable. Sophisticated simulation models lack training and calibration data since the environmental changes move a system towards a state which has not been observed or measured previously. However, not only scientific knowledge reaches limits when dealing with creeping disasters. Also the local knowledge of people living in the system under change and being affected by the impacts of the creeping disaster can prove highly unperceptive to the changes that occur.

Perception is a process which is the result of an interplay between the object, event, or situation that is physically received as a transmission of the senses and the perceiving person whose biographically and culturally shaped mental models guide the meaningful interpretation of the sensual transmission. In the understanding of Schütz & Luckmann (1974), these mental models are a person's lifeworld, i.e. "the sum total of the mental maps and models that people have built to allow them to cope in their environments" (Douthwaite et al. 2001: 10). When people perceive objects or processes that are occurring around them, they use their lifeworlds like a personal encyclopedia of understanding and action. The lifeworld is what one consciously regards as 'reality'. It is "a stock of knowledge, consisting of typifications, abilities, important skills and recipes for observing, interpreting the world and acting in this world" (Münch 2003: 201).

The process of how the lifeworld contents are shaped and in return shape any perception process is called social construction (Berger & Luckmann 1984). Berger & Luckmann argue that people do not perceive and understand the world based on facts in the sense of the biophysical reality as studied and analysed in the natural sciences, but

instead based on socially constructed symbolic systems. The social construction processes that take place when a person perceives something are rooted in the person's lifeworld. This lifeworld, however, is limited. It has both temporal and spatial boundaries with regard to the categories in which people can socially construct what is physically transmitted. Furthermore – similar to the aforementioned encyclopaedia – it has a limited content, i.e. only a certain set of mental models that can assign meaning to an object or an occurring phenomenon. These limitations of the lifeworld influence the perception of environmental changes, and particularly of creeping disasters, in three ways:

1. *Non-perception*: Changes that lead environmental processes beyond any corresponding typifications and mental models in the lifeworld may not be perceived at all. While climate change has been occurring for decades, for the majority of people in Germany it started around 2007 with Angela Merkel as the climate chancellor and numerous television commercials pledging their product's climate-friendliness.
2. *Translated perception*: Changes that come along with physical phenomena that transmit strong sensual signals, but do not correspond to any mental models in the lifeworld, may be perceived, but may be socially constructed along the lines of given lifeworld content – even if the consequent interpretation is 'wrong' from a positivist perspective in the sense that it does not reflect the reality as it can be measured and proven with natural science methods. When it starts snowing in a place where nobody has ever seen snow, this may not be interpreted as a weather phenomenon involving atmospheric temperature, but for instance ra-

ther as a sign of God's anger or benevolence.

3. *Lifeworld adaptation*: The content of people's lifeworlds is based on their biographical experiences as well as on their local context, i.e. their biophysical setting, historical roots, and cultural characteristics. Language often reflects this context. An example is the linguistic reference to rain in many weather expressions in Nankane (Eguavoen 2007), a language in Northern Ghana, where rain plays a major role for the everyday water availability and hence livelihoods of people. However, lifeworlds are also dynamic and constantly adapt to their context. While non-perception and translated perception as mentioned under the points 1 and 2 can prevail over long periods of time, lifeworlds are also subject to external information, to knowledge sharing and creation among groups, and to innovative processes of the individual agent. Such processes shape the content of the lifeworld and create new types of mental models which allow for new social constructions. Spoken with the above example: While climate change was previously not perceived at all, it is presently perceived by the majority of the German population and in numerous situations, e.g., as the cause of storms or heat waves (whether climatologists would agree or not to the perceived causalities). Climate change is part of people's lifeworlds and this allows for the processing of the phenomenon by the individual and its communication among groups of people.

Perceiving Water Scarcity

In the case of water scarcity as a creeping disaster, certain factors make the perception of change and

the understanding of underlying causalities particularly difficult. In regions where water scarcity is a biophysical phenomenon caused by an absolute lack of water resources, the hydrological cycle has a strong influence on water availability. Since many of its processes are highly variable, water abundance and scarcity are often the consequence of temporal patterns within the amplitude of 'normal' fluctuations, and water scarcity as a creeping disaster is perceived as a common drought situation and not as a trend. Only over long periods of time, when droughts occur more frequently or are repeatedly extremely grave, a creeping disaster may be perceived in the sense of a change of the system rather than a mere system variation.

Furthermore, water scarcity is most often not (only) a hydrological phenomenon. It may also be "a social construct (a product of affluence, expectations and customary behaviour)" that can occur "at any level of supply or demand" (UN-Water 2006a: 2). Water scarcity is defined by UN-Water (2006b: 4) as "the point at which the aggregate impact of all users impinges on the supply or quality of water under prevailing institutional arrangements to the extent that the demand by all sectors, including the environment, cannot be satisfied fully". Hence, it involves a multitude of both hydrological and societal processes, many actors and institutions, as well as strong variations within both the hydrological cycles and the institutional setup of water management, making a straightforward perception and understanding of causalities difficult.

This is particularly pronounced in regions where water availability is based on water resources in – often even transboundary – rivers. While downstream populations may suffer from water scarcity, it is difficult for them to receive information on up-

stream processes causing their situation. When national borders separate cause and effect, power struggles and negotiations further blur an analysis of the disaster, and the social construction of water scarcity acquires the additional character of a political process.

Adaptation as a Lifeworld Process

In the climate change literature, the term adaptation is defined as "any adjustment in natural or human systems in response to actual or expected impacts of climate change which moderates harm or exploits beneficial opportunities" (Klein 2001: 15). As suggested by the definition, adaptation can be used for a process before and after an impact. Klein therefore distinguishes between anticipatory adaptation (before initial impacts take place) and reactive adaptation (in response to initial impacts). For both types of adaptation, however, it is a prerequisite that the disaster is perceived at all and that a problem analysis has been established based on the local knowledge of the people capable of acting towards adaptation. As discussed above, both perception and problem analysis are processes that take place in the lifeworld and are highly dependent on the mental models the lifeworld provides.

I argue therefore that in addition to the adaptive capacity of a society to act in response, it is the adaptive capacity of the lifeworld which plays a fundamental role for the possibilities and effectiveness of people to deal with creeping disasters. If a creeping disaster is not even perceived at all because the lifeworld does not provide mental models for a perception, adaptation to the disaster is obviously impossible. When perception occurs even though there is no exactly suitable content in the lifeworld, the lifeworld may nevertheless be a resource to respond, in the case that the social construction

of the change is a useful translated perception. E.g. when the environmental change closely resembles a phenomenon in the lifeworld, the social construction may involve a multitude of mental models to understand and react to the change. When the creeping disaster of water scarcity develops, populations that have previously dealt with sudden droughts are likely to be able to cope and adapt more effectively than people who have only ever experienced water abundance.

In the context of a creeping disaster, the lifeworld should thus be seen as a constraint for the perception of and response to it, but at the same time as a crucial resource. It is essentially part of the adaptive capacity of people and through its dynamic character bears a major potential for learning by socially constructing new typifications and routines of action and thus creating a lifeworldly interpretation of the creeping disaster which can be communicated and dealt with. In the case of water scarcity it is hereby particularly interesting that water is an element of the symbolic systems of all cultures and religions, that it has a diversity of meanings attached in different contexts. And while it was discussed above that water scarcity is particularly difficult to grasp as a creeping disaster, it might be the global lifeworld diversity of water and water scarcity constructions that will prove helpful in finding ways to perceive, define, and adapt to it.

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Macht's die Mischung? Wie kann das Waldgebiet „Die Haard“ fit gemacht werden für die Zukunft? – Eine Ortsbegehung

Im internationalen Jahr der Artenvielfalt hatte das Bundesamt für Naturschutz (BfN) zu einem „Wandertag der Biodiversität“ am 22. Mai 2010 aufgerufen. Die Arbeitsgruppe „Angewandte Landschaftsökologie / Ökologische Planung“ der Universität Münster kam dem Aufruf nach und organisierte eine halbtägige Wanderung durch das Waldgebiet „Die Haard“ (Naturpark Hohe Mark, Kreis Recklinghausen). Forstreviersleiter Harald Klingebiel führte die 15 Kopf starke Gruppe durch sein Gebiet, berichtete über die regionale Geschichte, den Wandel der Waldnutzung und die Herausforderungen für die Waldwirtschaft in Zeiten des Klimawandels.

Von Julia Baumeister, Münster

Die geschichtliche Distanz, die wir überwinden werden, wird größer sein“, scherzte der Revierversorger zu Beginn der Wanderung. Er sollte nicht ganz

Unrecht behalten. In einer Zeitreise ging es von der Vergangenheit des Waldgebietes über die Waldbewirtschaftung der Gegenwart bis hin zu zukünftigen Szenarien und weitsich-

tigen Überlegungen. Im Verlauf dieser Zeitreise wanderten wir bergauf durch den Wald bis hin zu einem der Feuerwachtürme.