

THANCS – a process to address tensions that emerge in/with a transition towards sustainable development

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Abstract

‘I want to bring my children safely to school. It is raining outside, we are late. They could go there by public transport. There is the car, today I have got time, because I am not working. What shall I – as a person who wants to live a sustainable lifestyle and be a role model for my kids – do?’

The case just described shows a typical situation in our Western societies faced by people, who see sustainable development as an important value. This paper describes theoretically and with examples three possible classes of such tensions: intra-individual, intra-societal, and intergenerational. Usually, the reasons behind actions, e.g. beliefs, values, needs are not seen; only the behaviour is obvious. In order to open up the space for alternative and more sustainable actions, we suggest dealing with these tensions by looking exactly to these hidden issues.

¹ This paper is strongly based on a book chapter by the same authors called TRANSITION TOWARDS SD. WHICH TENSIONS EMERGE? HOW DO DEAL WITH THEM?, in: In: Rauschmayer, F., Omann, I., Frühmann, J. (Eds.), Sustainable Development: Capabilities, Needs, and Well-Being. Routledge, London, pp. 144-163. We are grateful to comments from Tom Bauler, Johannes Frühmann, and Lisa Bohunovsky on earlier versions of this text and to Ariane König from the University of Luxembourg for allowing us to apply the method in her course as well as to colleagues from SERI for diving into the experiment.

Introduction

Our current lifestyles are strongly determined by a quest for increasing standard of living expressed through material consumption accompanied by environmental damage and impacts on the society². On the societal level, increasing demand for household consumption requires an increasing purchasing power; both factors are connected to increasing economic growth.

We are (globally and country-wise) not following a sustainable³ path; the negative effects substantially degrade the quality of life, sometimes below a threshold of a decent life quality (see for instance Jäger 2007; Worldwatch Institute 2010). In particular the crisis of 2008/9 showed us how unsustainable we are: economic crisis, still increasing greenhouse gas concentrations, peak oil and peak everything being closer than we thought, biodiversity loss, inequality between and within countries at new highs, life satisfaction stagnating or even declining (Nef 2009).

If we want to change the current path, then we have to revise the current trends of an ever increasing material consumption to meet our needs. This requires a change of lifestyles (cf. Hinterberger et al. 2009) which does not go without a change in consciousness. ‘Preventing the collapse of human civilization requires nothing less than a wholesale transformation of dominant cultural patterns. [...] This transformation would reject consumerism—the cultural orientation that leads people to find meaning, contentment, and acceptance through what they consume—as taboo and establish in its place a new cultural framework centred on sustainability.’ (Worldwatch Institute 2010: 3).

In ‘The Great Transition’, the New Economics Foundation (Nef) explains why a business-as-usual path cannot be followed (Nef 2009: 3): Climate change and inequality will cost the UK trillions of pounds (in the period to 2050 the cumulative cost associated with climate change will range from £1.6 and £2.6 trillion, while the cost of addressing social problems related to inequality will reach £4.5 trillion, *ibid.*: 4).

The starting point of this paper is the – probably contrafactual – assumption that there is a (political) agreement to aim for a transition towards sustainable development (SD). The aim of this paper is not to check how valid these political statements are, but rather to look at innovative and promising ways on how to implement such transition. We look at this transition from a

² We use too many of our resources, which is shown by the ‘overshooting day’ or ‘ecological debt day’, as it is also called, which comes earlier every year or by the ecological footprint, which is on average above the sustainable threshold and way above for industrialized countries; for instance the average footprint of an Austrian citizen is 4.9 ha; the sustainable figure would be 1.8 ha per capita (cf. WWF 2006).

³ We follow here the Brundtland definition of sustainable development, which says that a development is sustainable if it allows current and future generations to meet their needs.

Western, respectively industrial countries' perspective. This means that our capabilities, or possibilities to change our life courses, are larger than those of inhabitants of poor countries.

A transition can be defined as a gradual, continuous process of structural change within a society or culture. Yet not every country follows the same demographic transition curve: there are large differences in the scale of change and the period over which it occurs. Nor is the transition process deterministic: it will adapt to, learn from and anticipate new situations. Transitions involve a range of possible development paths, whose direction, scale and speed government policy can influence, but never entirely control (Rotmans et al. 2001: 16).

Such a process can be described by various phases (see for the Dutch school of transition management: Loorbach and Rotmans 2006). In the light of this paper we want to see transition as a pathway and fundamental societal change (which can be gradual and smooth but accompanied by quick turns as well) that leads into a world that is definitely different from the existing paradigm (growth-related, as described above) to one with different values, culture and behaviour. According to Rotmans and colleagues, such a transition process would take about one generation (Rotmans et al. 2001).

We understand SD not as the final aim of individual or societal development but as a precondition for a high quality of life for everybody now and in future or, in other words, we see SD as a basis for enduring human flourishing. In Rauschmayer et al. 2011, the authors have developed a framework which shows in detail the linkages between SD and human flourishing. Some of these linkages – which are important for the ideas of this paper – shall be explained here.

Quality of life can be differentiated into two dimensions, one objective (the opportunities and frame conditions given) and one subjective (the well-being resulting from fulfilment of needs). Needs are met by applying strategies (for instance to meet my need for participation my strategy is to be a member of different associations). Depending on the objective conditions (resources and opportunities), on my socialisation, my values and the culture I am living in, as well as belief systems and preferences I choose certain strategies to meet my needs. Meeting my needs is a prerequisite for well-being and flourishing.

Definitions

- **NEEDS** are the most fundamental dimensions of human flourishing. We call needs those reasons for action that require no further explanation or justification. Examples are: subsistence, affection, freedom, creativity, identity, protection or understanding.
- **STRATEGIES** are instrumental means to fulfill needs. Typically, strategies relate positively and/or negatively to more than one need.

- **VALUE:** The attribution of a specific degree of importance to a need or strategy or to a set thereof. In this regard, sustainable development is a value as it confers high importance to specific strategies to particularly meet the needs of PROTECTION and AFFECTION.
- **WELL-BEING** refers to emotional states and reflections of meaning in life based on the subjective experience of one's fulfillment of needs. Its hedonic part reflects the pleasure experienced and is linked to emotional well-being, its eudaimonic part reflects the striving to realize ones personal and social potential.
- **QUALITY OF LIFE** is related to individuals and has objective and subjective components.

Box 1: Definitions for terms used in this paper, based on Rauschmayer et al. 2011, p. 11

The aims of this paper are (1) to show tensions that might arise from pursuing a sustainable lifestyle because of needs or values conflicts; and (2) to argue why a transition towards sustainable development requires that actors start by looking into their inner side, reflecting upon one's values, feelings, world views and being open and prepared to develop; and to give (3) empirical examples how the above mentioned tensions can be dealt with by following a four step path.

A motivation for the transition mentioned is given in the next section, based on the authors' personal values. Then we differentiate between three forms of tensions we see arising when pursuing sustainable lifestyles and include examples for them. The subsequent section presents one process (THANCS) to deal with those tensions that includes inside and outside as well as collective and individual perspectives in general. Before the conclusion, we apply this THANCS process to two empirical exercises.

Motivation for a transition

Why do we want to transition towards sustainable development? This question is easy to answer as long as our current generation is concerned. Arguments can be: everybody wants health, a clean environment, resources to produce and consume, and therefore a certain state of ecosystems. All mentally sane persons care for at least some other currently living human beings and for some of those members of the subsequent generation that we already know or even don't know (Howarth 2007). However, these arguments are not sufficient to justify a generalizable demand or wish for a sustainable development in the long term. Why should one care for future generations beyond the generations of their children and grandchildren?

For many it is morally intuitive that it is a good thing to care for future generations. It is impossible, though, to derive a reason for this intuition from descriptive sciences alone – natural sciences give important answers in the questions on how to develop (or how not to develop), once the questions of values have been clarified. Mythical reasons to give the next generations what we have got from 'god' have been sufficient in former times, but are not sufficient for legitimizing public policy in democratic and secular states (see for instance Wilber 1997; 1981;

Beck and Cowan 1996; McIntosh 2007). Some have tried to find a rational, universally acceptable reasoning for why everyone should care for future generations. Empirically, it seems difficult to grant moral value to people that live in a distant cultural world – and this difficulty increases with the perceived distance between the valuing and the valued person (Nida-Rümelin 1997). Even though the morally accepted distance between both has widened in human history (abolition of slavery, human rights, women’s rights, ...), most members of current societies are still far away from granting the same value to all currently living people (intragenerational equity) and still further away from granting the same value to members of future generations. As had been shown by Parfit (1983; 1990), it is far from easy to give good reasons why we should grant rights to people whose existence depends on our decisions (see O’Neill, 2011 on this).

Another, a more personal way to answer the question why to adopt sustainable behaviour is to explore the roots of individual behaviour, i.e. to look into the feelings and thinking, values, and needs inside oneself – the area of the iceberg below the waterline (figure 1), which means to inquire and become aware of them (for more explanation see Rauschmayer et al., 2011b). The following paragraphs show our own introspection and/or intersubjective dialogue (Buber 1995).

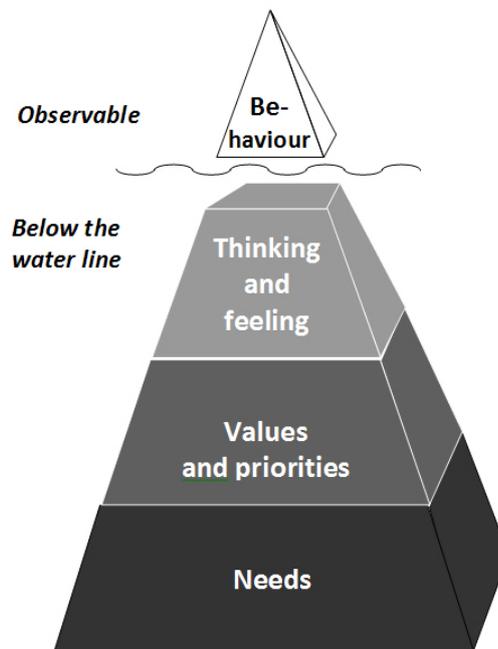


Figure 1: Roots of individual behaviour (adapted from Bellin 2010)

Our own motivation

Why do we – the authors - want a sustainable development, i.e. meeting the needs of the current and the future generations?

Ines Omann:

I have been raised in a typical middleclass household in the Austrian countryside, amidst a big family with four sisters and brothers and lots of cousins. This has coined me strongly and makes me value highly a family with strong internal relations. However, I faced situations in my family that were unfair in my eyes, either against me or against others (the 'behaviour'-layer in the iceberg model, see figure 1). These situations left me disappointed, sad and even angry ('feelings'); these feelings made me aware of the importance given to fairness and justice, first with regard to me, but then expanding the focus to others ('values and priorities'). Those others were first sisters and brothers, friends, schoolmates, but soon the whole world. Thus I would say the aim of pursuing justice is an important source of my engagement for a sustainable development. Needs that I value highly are freedom, affection, leisure, personal development and transcendence, as well as protection (of nature and of others). I want to live a life that enables me to meet these needs, and I want everybody else to have the right to live according to their needs and values too. Engaging myself for the possibility of further human development on this earth beyond the next two or three generations contributes to my meaning of life.

This wish to move towards sustainable development made me choose my profession as well as write this paper, which deals with the tensions we all face when we decide to support a transition towards SD not only with our job decision but also and above all with the lifestyles we select.

Felix Rauschmayer:

When I see that our current socio-economic development (1) causes suffering as well as endangers and annihilates the life of many individuals and of many species, (2) is not able to decrease (or at least not significantly) the number of those currently suffering, and (3) does not clearly increase the opportunities of poor people and of future generations to live a valuable life, I feel disappointed, helpless, angry, and frustrated. I highly value the idea of not causing unnecessary harm to any other living being, and the importance of this not causing harm increases with the ability to suffer. Even though I do not know how future people will be living, I am convinced that they will have the same needs as I have.

Being a rather well-off member of a rich society, I am not afraid for my own well-being due to our currently unsustainable development. I am even not afraid for my own children, despite global warming and all the biological and social processes that this will sharpen and cause. Caring for other sentient beings – alive or not – is a way of expressing my needs for protection and affection. I translate this caring into an engagement for sustainable development in the scientific and political realm as well as in my personal way of living. These are major domains for further strategies to realize these needs as well as my needs of identity, creation, participation, freedom and transcendence.

Comparison between the two authors

For both of us the primary motivation to write this paper firstly comes from our scientific engagement for SD. We see the current situation as not sustainable, which leads to feelings such as anger, sadness, and frustration. Needs are not met – some of ours and, depending on whom we are talking about, some or nearly all of other living or unborn people. In addition, we see the danger that the future generations will not be able to meet their needs.

Felix Rauschmayer values the life of others and not harming them very highly; caring for others as well as engaging for SD (scientifically, politically and in his own lifestyle) are strategies to meet his needs for protection, affection, identity, creation, participation and freedom. Valuing justice and fairness highly motivates Ines Omann to engage for SD (scientifically and in her own lifestyle) and helps meeting the needs for freedom, affection, personal growth and transcendence, protection of nature and others.

Comparing our statements (which we wrote independently from each other), we see that the motivations are very close (nearly same needs, feelings). Differences lie mainly in the values, which arise from our culture and socialisation, where the latter has been quite different between us. We both investigated our mind-sets, i.e. our inside perspectives on us as individuals, where needs, feelings, belief-systems, values are included. This perspective is complementary to outside perspectives on individuals (behaviour) and collectives (systems) as well as inside perspectives on collectives (culture) (see table 1).

| | Collective | Individual |
|---------|-----------------------|-------------------------|
| Outside | b. Systems | a. Behaviour |
| Inside | c. Culture | d. Mind-set |

Table 1: Four complementary perspectives on individuals and societies (adapted from Wilber 1995)

Wilber's (1995) four-quadrant model (table 1) allows reflecting on the use of different perspectives in research and, in our context, to take a more complete look with regard to the transition to SD. The model refines the concept of individuals and their context by using four complementary perspectives which are differentiated between two dimensions: inside/outside and individual/collective. Each of the four quadrants offers a different view and therefore also

different insights on an entity. If we integrate the iceberg into the quadrants its top would be in quadrant a, behaviour, the rest in quadrant d, mind-set.

As you may have seen in our small statements above, starting with reflecting on the inside means to start with (1) becoming aware of, and (2) questioning and changing own values and preferences – this eventually leads to changing existing lifestyles. Lifestyles also change, of course, due to external changes, particularly if these are rather culture-related than mere systemic changes in the natural or institutional environment. As most attention has been given to systemic changes, less to cultural and very little to intra-individual processes, we argue that acknowledging and integrating this last perspective into sustainability science and politics can lead to more durable achievements in transition processes.

But ‘inside’ changes cannot be imposed, but only influenced from the government or the ruling class – German 20th century history gives examples for this⁴. Weaver and Jordan (2008) argue that supportive constituencies are needed for policy makers to be able to take the risk of starting fundamental changes. This citizens’ support can only arise out of certain values, feelings and beliefs (quadrant d in table 1), or, as Robinson et al. (2006) call it, from new approaches for engaging different groups in public policy making in sustainability issues.

Coming back to the main theme of this paper, the tensions we face when pursuing a transition towards SD, we shortly explain here what we mean by tensions, before elaborating on them in the next section. The lifestyle a person chooses is reflected in the selected strategies to meet one’s needs. Everybody has already experienced value conflicts when taking a decision in the form of a dilemma or a tension. Sustainable development can be seen as a value (Rauschmayer et al., 2011) or as a set of values. No matter how we see it, a lifestyle according to these values will most probably lead to conflicts and tensions. By choosing a certain strategy we can meet one need and harm another for instance. E.g., the strategy of using public transport instead of a private car protects subsistence and allows participating in a certain social group as well as creating a new lifestyle; at the same time, it could inhibit to feel free and endangers one’s identity. We differentiate between three forms of tensions which will be explained in the following section.

Tensions emerging in sustainable lifestyles

‘The aim of SD is to increase the quality of life for current and future generations, i.e. to generate increasing well-being and more capability space for current and future generations, at least above a certain level’ (Rauschmayer et al., 2011). This can only be achieved through a globally

⁴ The German socialist regime apparently has not produced a shift towards more socialist values (Arzheimer 2005); it is our impression that the fascist regime was more successful here, as it succeeded better to adopt existing and create new encompassing cultural movements, herewith inducing a shift in the inside collective perspective.

diminishing consumption of natural resources (the degree of the reduction being much higher in the industrialized countries). In current politics, we see policies aiming at improving the efficiency without really questioning behaviour (such as factor 4, 5, or 10, Weizsäcker et al. 1995; Weizsäcker 2009; Schmidt-Bleek 1993) or at changing behaviour without addressing values and needs. Increasing efficiency aims at avoiding conflicts related to values and deeply rooted practices. Policies based on this concept, though, have achieved a reduction in nature consumption in very few cases only; they rather lead, e.g. through the rebound effect, to a continued increase in nature consumption (Binswanger 2001). Efficiency increase therefore has mostly been used for an ever passing increase in hedonic well-being of the powerful (future generations having the least power), but has not really contributed to an increase in their overall quality of life (cp. Rauschmayer et al., 2011). Therefore, as in capitalism, we have to face conflicts between powerful and contemporary powerless people. Taking this analogy further: might then the moral concept of SD take the role that the standards of the International Labour Organization (ILO) has in labour-related conflicts, i.e. aiming at guaranteeing minimal rights of the powerless? We all know about the difficulties of enforcing the ILO-standards, but the situation is even worse for SD: it is not clear who harmed whom, the currently poor have very little possibilities to make them heard, SD does not state rights on an individual level, and members of future generations are not existent at the time when the actions are done that will do them harm (if these people ever exist, cf. Parfit 1983). Meta-strategies such as efficiency give the impression that conflicts around SD can be avoided; instead of this, we are now looking for ways how to deal with them.

Rijsberman (1999) distinguished the following sources for environmental conflicts: data and facts, values, relations and interests. All three sources are present in conflicts related to SD, but the value dimension is particularly strong. Values give importance to specific needs and strategies, and values differ between the individuals. One can therefore understand conflicts as conflicts between values given to different needs and strategies. To reach a shared understanding of values, though, may be more difficult than trying to agree on strategies to meet needs, as it implies to open oneself up which requires a climate of trust procuring security.

By applying the needs-based concept for SD (Rauschmayer et al, 2011) we notice that all actors are confronted with the same problem: to find strategies that help meeting some of their needs without compromising the same or other needs at the same time. This means that all people aim at a better understanding of those factors which enlarge and restrict their capability spaces, i.e. of the relationships between the strategies on the different levels and the needs involved. A better understanding of these factors would also contribute to find proxies for the participation of future generations in our decision processes.

We assume that individuals can alter their quality of life by individual decisions, herewith selecting specific strategies from their capability set in order to better meet their needs which impacts on their well-being. We assume that these decisions are difficult decisions in the sense that tensions arise – within the individual and between individuals. Intra-individual tensions are due to several factors such as: ignorance and uncertainty with regard to values, strategies, needs, well-being, and their respective relationships; values that lead to incompatible prescriptions; behaviour driven by habits. Intra-societal tensions are due to competitive use of resources, differences in values leading to different prescriptions with regard to strategies (and also due to envy with regard to differences in well-being). We now take a closer look at tensions that arise due to a mutually exclusive use of natural capital as we judge this the crucial point with regard to the intergenerational aspect of sustainable development, being also of some importance for intragenerational justice.

Taking up the image of the iceberg (figure 1): In a conflict we see clashing behaviour above the waterline, and we can interpret this as strategies clashing with each other. People have different strategies as they have different understandings of facts and/or different values and priorities. On an individual level, going down to the needs layer allows each individual to perceive that there are more strategies available than just the one chosen; one recognizes that other strategies might better meet one's own as well as the needs of the others. This recognition may help to induce a dynamics that resolves conflicts which are on the level of strategies.

On a societal level, thinking and feeling as well as values differ between different actors. Therefore, it is not astonishing that different actors interpret SD differently according to their belief about the importance of specific needs and about the validity of specific relationships between strategies and needs. Commonly, interpretations of economic actors focus more on their need for freedom whereas environmental CSOs interpret SD more with regard to protection. At the same time, the economic liberal strategies, which many economists believe to strengthen freedom, are, according to many CSOs, rather reducing freedom. Complementing these rather contrasting layers of human conflicts, the concept of abstract and common needs gives some resort for reconciliation. Noting that at the bottom, the two, apparently incompatible icebergs of two 'conflict partners' are constituted by the same layer eases the tensions. This basic layer can also constitute the basis for addressing conflicts with regard to future generations whose values and priorities, thinking and feeling, and, therefore, whose strategies are unknown to us. The conflicts have a fictitious part insofar as the future generations do not yet exist and, in consequence, they are not bearer of interests, values, or needs. But as we or self-acclaimed representatives of future generations have value claims relating to our internal representations of future generations, these conflicts become real internal or external conflicts.

In order to get a clearer picture of these conflicts, we now differentiate between intra-individual, intra-societal and intergenerational conflicts. This categorisation parallels the moral development sketched above: a growing cultural distance between the valuing and the valued person.

1. Intra-individual tension: a given strategy or set of strategies, that is prescribed or recommended by SD, can be in conflict with other values. The sustainable strategies help or inhibit the individual to realize certain needs and no synergetic strategy is found.
2. Intra-societal tension: The needs of any individual or societal group wanting to pursue sustainable strategies in our societies are affected by needs of other individuals or groups or affect needs of other individuals or groups, who might choose unsustainable strategies. This tension points to the interdependency of individual behaviour with societal culture and the systemic embedding of behaviour.
3. Intergenerational tension: This tension arises if certain societal strategies support caring for next generations, but inhibit current needs and vice versa.

The differentiation between the three tensions is somewhat artificial, as they are all inter-linked. The intergenerational tension, for example, becomes manifest only through intra-individual tensions when the individual has a moral concern with regard to future generations, or through intra-societal tensions when there is a group of people voicing this concern in society. The examples will show the difficulties of this differentiation. Addressing these tensions in the vocabulary of needs is a first step when trying to overcome mere avoidance of conflicts or mere seeking for compromise between interests.

Examples for tensions

1) Intra-individual tension

An Austrian journalist has started an experiment in the beginning of 2010⁵. He was fastening CO₂ during this year with the aim to reduce his CO₂ emissions by three quarters. In his blog (Brandner 2010) he describes the change of lifestyle he is undertaking, his activities as well as the concerns and doubts that he was facing throughout this experiment. His blog has stimulated much attention and many reactions. In an interview with one of the authors in March 2010, he talked about his current intra-individual tensions due to his experiment (Brandner 2010).

His biggest cut was to give up his car and not to buy a new one, although he had been wishing such for a long time. He dreamt of buying a certain model of BMW. He even went some time

⁵ A similar project exists in Belgium since 2008: <http://lowimpactman.wordpress.com>

ago with his son to the BMW museum and exhibition hall in Munich to see the car and to make a test drive and: he was fascinated. Possessing and driving such a car would be a strategy to meet his needs for leisure, creation and also protection of nature.

- Leisure: because of the fun and the good feeling he was experiencing when driving it, the smooth movements of the car, the 'perfect' silhouette.
- Creation: He calls himself a technology freak; he knows a lot about cars and their technical details. This certain model allows him to live his technical creativity, to be part of this innovative technology and to play with it.
- Protection: The car uses only 4.5 litres of gasoline per 100 km with 120 PS. This means that it is very energy efficient, which would fulfil partly his need to care for nature. But he also knows that cars using 4.5 litres cannot be a general mobility strategy on a global level.

Instead of buying this car, he chose to mainly use his bike, public transport and his feet as strategies for his private mobility in 2010. He admitted that it had been a hard decision accompanied by inner conflicts. What he did was to reflect upon his values, needs and possible strategies (entering his mindset, table 1). That way he was able to take a decision which was at first glance not leading to well-being. However, his feelings have changed due to changed values and due to changed experiences. He now is aware that his decision allowed him to meet needs which are currently more important to him than those met by owning the BMW. The relevant needs are leisure and protection of nature (which would have also been partly met by having the car) and, in addition, affection and subsistence.

- Leisure: by avoiding useless or unimportant car rides he saves time, which he can use for himself, for his family, to relax. By this strategy, he is decelerating his whole life.
- Protection of the environment: Neither having nor using a car saves lots of energy and resources and contributes strongly to his CO₂ reduction (his need for protection is better met by this current strategy than by having a car).
- Subsistence: his physical health has already improved through cycling to work every day; he is investing the saved money in (regional, organic) food, house insulation, fair trade products.
- Affection: Avoiding car-rides gave him more time with his family which improved their relationships.

His conclusion is that seeing his decision in the light of what he lost and won, he can definitely say that his quality of life has increased through a different lifestyle with regard to his personal mobility. So, he could nearly completely dissolve his tensions.

2) Intra-societal tension

Continuing with examples in the same field, there are tensions between those people who wish to use CO₂-poor mobility strategies and the general organization of public and working life which is focalized on the use of cars and airplanes, on high personal mobility and a globalized economy making it often very difficult to buy local or regional commodities, as many of them are produced with global inputs or by global players (cf. for the issue of ‘glocalisation’ to Swyngedouw 1997). Additionally, culture, as the expression of socially shared values, puts moral pressure on those who decide not to pursue those strategies which are socially valued.

An example for the cultural pressure is the question on how to bring children to school. The culturally dominating style is the ‘taxi-service’ given by parents to their kids in order to bring them safely to school or other places, herewith increasing not only CO₂-emissions, but also all other traffic-induced nuisances, such as noise, danger, dust etc. One of the authors decided to use a bike trailer for transporting his children to the kindergarten, even though a car was available. The judgement of other parents was ‘irresponsibility’ as they judged this mode of transport too dangerous (accident, exhaust fumes).⁶ Their (supposed) expression of their need for protection clashed with the expression of the author who valued not only the needs of his kids, but also those of other born and unborn sentient beings.

There are different elements available for resolving this kind of tensions: changes in structure (quadrant c in table 1), such as better cycle lanes, in culture (quadrant b), such as a higher social value on environmentally friendly behaviour, and in mindset (quadrant d), such as more coherence between one’s own needs, values, as well as thinking and feeling. Changes in these elements may facilitate changes in individual behaviour (quadrant a) and herewith ease the tensions.

Changes in culture require a dialogue that goes beyond confronting the strategies. Each layer (of the iceberg, figure 1) descended gives a greater chance of reconciliation. Some tensions are eased by referring to feelings and rational arguments, others only once the respective values are understood. Referring to common needs requires a high degree of revealing oneself, and

⁶ This judgement also had an intra-individual dimension, as the author also wanted to meet his need for protection by offering a safe mode of transport for his kids.

herewith inner strength or trust in the partner of the dialogue, and – at the same time – offers another possibility for reconciliation (see also the next section on dealing with tensions).

3) Intergenerational tension

Restricting the impact on climate change is one of the currently most prominent strategies for intergenerational justice and, herewith, for protection. Even though we do not know who will live, how these persons will live, what values they will have and what strategies they will favour for meeting their needs, it is plainly obvious that climate change will not contribute to increase the capability set of future generations at large. Adopting this strategy, one of the authors therefore decided to restrict own travel for professional and private reasons. At the same time, this author wants to learn, contribute, and gain professional security (all three judged to be increased by frequent travel to conferences), as well as maintain a link to a family member living in another continent, herewith aiming to realize the need for affection.

There are some societal groups arguing for a restriction of air traffic, usually through economic disincentives, or, put differently, through the abolishment of fiscal advantages, or through voluntary payments offsetting CO₂-emissions. But these groups do not have much societal impact for the moment, i.e. flying is a culturally widely accepted behaviour. Therefore this intergenerational conflict mostly takes place intra-individually. Tired of the many intra-individual decisions with regard to the mode of transport for longer distances (plane or train), the mentioned author decided to adopt the double rule, (1) to use airplanes only for journeys that take more than 24 hours by train, and (2) to be very restrictive with regard to intercontinental journeys, be it for professional or private reasons. This rule has created tensions with the family member abroad, and is restricting his professional opportunities. Research is increasingly organized on a global level, and limiting oneself to a geographical area is often met with incomprehension. There are requests for personal or professional exchange (motivated by affection and/or learning) that cannot be met due to travel limitations.

There are different leverage points for a transition towards a more intergenerationally just behaviour: *mindset, culture, and system*. As discussed above, a system's change in democratic societies require a value shift in a large part, if not the majority of the society. Values are anchored in communities and individuals, and cannot be changed by order, but only through manipulation or autonomous change. As with the last category of tensions, the latter requires again a 'deep' dialogue or monologue.

Particularly in this last tension, but also in the second one (the intra-societal tension), intra-individual tensions are very present. The overall presence is evidently a product of internal value conflicts where the value of SD does conflict with other values (or, more precisely: where

strategies prescribed by SD conflict with other values or vice versa). We consider SD as a value, as it confers specific importance to specific needs and strategies (cf. Rauschmayer et al, 2011). Therefore, it has a strong prescriptive force for those people who adopt SD. Of course, SD is not the only value an individual adopts. In consequence, actions towards SD may infringe prescriptions stemming from other values. Intra-individual tensions are small where SD prescriptions can easily be accepted or where prescriptions stemming from other values are neutral to SD, e.g., the recycling of bottles when the necessary environment in form of glass recycling facilities has been created. Intra-individual tensions can be large, e.g. in the case of human population management where the individual rights to sexuality, family, and autonomy clash with the requirement to reduce human population on earth, as it is not possible to imagine a high-quality life for even more than the current population size on a long term perspective. Intra-societal tensions often reflect in intra-individual tensions as well, when claims from other people are acknowledged and perceived as legitimate.

The moral challenge of intergenerational justice, inherent in SD, often conflicts with traditional or narrowly self-regarding values: e.g., traditional cultural norms advise us to care for our current family rather than for future generations. There is an additional issue with intergenerational tensions, as briefly mentioned above: whereas the contemporary bearers of moral claims can make themselves heard, the bearers of moral claims in issues of intergenerational justice are not present. In societal terms their claim only exists because of some individuals who adopt them and make them heard. With other words, this intergenerational claim necessarily has an inside component that cannot be explained by an outside perspective alone.

Dealing with the tensions – a suggestion

The last section described reasons for tensions coming from beliefs and value conflicts. Dealing with tensions requires going beyond the tensions to the beliefs and values lying underneath and addressing them. We see a four-step process as an option to deal with the tensions⁷: THANCS (Thriving for Awareness for Non-Conflicting Strategies).

Let us come back to the iceberg (figure 1) which reminds us that individual behaviour is just the top of an iceberg. The internal roots of this behaviour are constituted by conscious and unconscious factors of the internal world (knowledge, habits, feelings, values, needs, belief systems). The deeper layers are more difficult to reach from the outside, by policy makers,

⁷ We are aware that it is not possible to impose such a process for all conflicts and tensions arising in decision making in the light of SD. It requires certain preparedness, openness and experiences of actors. In this paper we can only state our ideas and give feedback from first empirical applications, but not give solutions how to bring them into practice. But we hope that – based on experiences we win from current and future research projects – we can give more insight on the practical implementation of our ideas.

scientists or others. Thinking and feeling can easier be influenced than values and priorities which usually evolve in a cultural process.

With THANCS we present a tool that allows going beyond the waterline down to the level of needs.

The process:

1. Recognizing the tension(s)
2. Reflecting individually upon the iceberg underneath the tension(s) (values and priorities, met and unmet needs)
3. Communicating the reflection results to the persons affected by the tension(s), if possible
4. Starting a process of creativity to find ways of dealing or even overcome the tension(s)

Ad 1) Tensions might initially be recognized by a feeling of unease when choosing a strategy and/or when applying a strategy. Such tensions might as well be identified on a cognitive level by sharing this uneasy feeling with people standing close to one or with those having chosen the same or a similar strategy. Another possibility to recognize a tension in one's individual or societal behaviour might be by experiencing opposition by other people, be it through personal confrontation, or through confrontation to ideas laid down in media or even laws. This first recognition therefore already involves the first underwater layer of the iceberg: thinking and feeling.

From the outside, it is not straightforward how to strengthen the ability to recognize tensions. Most likely this can be facilitated by close persons (parents make their kids aware of possible tensions; among friends) or professionals (coaches, therapists). Authorities can support the awareness by informing their citizens via media or in education programs about possible tensions between their strategies and those supporting SD.

Becoming aware of the tension between, e.g., car 'taxi services' for children and the need for a safer environment, can thus be the first step, mediated by friends, media, or public administration. Recognizing the tensions means to look at strategies that I selected to meet my needs and to realize that there are conflicts between these strategies and SD. The recognition, hence, leads to an initial reduction of well-being (conflicts usually have a component that impacts negatively on the need for affection).

Ad 2) The next step would be to look underneath the tension that has been recognized emotionally and/or cognitively. What triggers the tension? It might be a mixture of needs and values, belief systems and convictions as well as habits. It is possible that the tension starts to dissolve, just by reassuring oneself that the behaviour is in line with one's convictions, values, and needs, or by shifting the behaviour in order to achieve coherence, or by shifting one's values, beliefs, etc. As in the first step, no law or regulation can support this inner reflection of individuals. Again, close persons, media, education, and professionals for personal development can support this step. If the addressed tension emerges within decision makers who choose strategies on the societal level, then the reflection has to include not only the inside of the decision maker but also the needs, values and belief systems of the persons he or she is representing. That way, mutual understanding can be created which is conducive to acceptance for the decisions from all sides.

This step is of course linked to the whole iceberg below the waterline, as it requires 'diving' exactly down there. And in concordance with the iceberg below the waterline this step addresses the often forgotten inside of the individual.

In the first step we addressed mainly the strategies and noticed the reduction of well-being that might emerge due to tensions with pursuing SD. Here we look deeper into our needs and where they come from: culture, values, thinking and beliefs. They influence our needs (which needs do I want to meet now and foremost) and the strategies I eventually choose. Thus, if I want to reduce the conflicts that accompany my behaviour, I can influence and reconsider the culture I live in and values and maybe change them or decide to change my behaviour. Being able to do so reflects my own autonomy, potentially increases the coherence of what I am and what I do, and herewith raises my well-being. Alternatively, I can also accept the tensions as they are, if I do not want to change, neither the behaviour nor the areas below the waterline; sometimes, self-inquiry or meditation make such tensions vanish.

Ad 3) This is the time when the person who has recognized the tension, reflected individually on it and its reasons, goes outside and talks to whomever the tension and related strategies might concern or persons who share the tension – if this person exists (not possible with future generations – here intra-individual or intra-societal communication has to replace this, see below). The decision maker talks to the affected groups, the individual to other individuals or groups. In the case of an intra-individual conflict, the communication can consist of becoming aware of the reflection results or talking with a close person about them. It is important to get into resonance with the person(s) vis-à-vis and to respond to them in their language. Forms of dialogue which can support this step are, e.g., public discourse (Dryzek 1996), social learning

(Tabara and Pahl-Wostl 2007; Siebenhüner 2005; Social Learning Group 2001), or intersubjective dialogues (Buber 1995).

In particular, if this tension emerges between groups, the government can support this step by according their employees (decision makers as well as those that help preparing the decision) a special education including social competences, the above mentioned methods and moderation skills. This education is of strong importance also to facilitators in sustainability research (Rauschmayer et al., 2011b).

If the conflict is intergenerational, then a discourse with the affected people can not be done. For any simulation of an intergenerational dialogue it is important to reach a shared understanding of the elements that future generations will require for a decent or high quality of life: needs, strategies, capabilities and our influence on them through resource use, cultural change, economic development paths, etc. Adopting SD, we all agree that future generations will have needs for subsistence that will require a certain state and management of ecosystems, and that any paths that inhibit this kind of opportunities is unfair to them.

Ad 4) Through the acts of recognizing the tensions, reflecting upon and communicating about them, clarity can arise that there is not only one strategy to fulfil a need, but ‘thousands’ of them. Due to habits and not reflecting, only one (or few) of them is usually chosen and declared as the dearest one. The first three steps allow us to leave our single-mindedness and see other strategies and – which is important for a change of habits – see the drawbacks of our preferred strategy as well as the advantages of other strategies. Maybe they lead to more well-being, maybe they require less effort and through them, we may even realize other needs simultaneously, being less in conflict with other needs and values that are related to SD. Seeing other strategies AND experiencing them is a process of creativity (by the way, this allows without extra effort meeting the need for creation). This creation process can evolve on the individual level or within communities/groups. Governance actors can even initiate such a process through setting stimulating frame conditions (organize participatory events, for instance a wisdom council⁸). Facilitators can support these events and elicit innovative strategies from the participants. Ideally the event is part of a longer (research) process, which includes experimenting with new strategies in a protected frame, herewith including the emergence of a new culture, even though in

⁸ The Wisdom Council Process is a new way to transform the collective decision-making process of large systems. It facilitates the people to become more informed, competent, creative and collaborative and to come together in one whole-system conversation where the most important issues are resolved. The point of the Wisdom Council process is to generate a creative, system-wide conversation that reaches specific conclusions, the will to implement them, and builds the spirit of community. The goal is to have everyone talking in a thoughtful, creative, heartfelt way about the big issues and to cooperate for consensus views to emerge (from <http://www.wisedemocracy.org/breakthrough/WisdomCouncil.html> and http://www.tobe.net/wisdom_council/wc.html: 3.4.2010); cf. Rough, 2002.

laboratory conditions. Protection means here that the consequences cannot become too negative (i.e. expensive, harming the health, reducing social capital). The experience (with all senses) of new strategies allows the actor a holistic judgement about the impacts of these strategies, whether they meet the needs as hoped for and reduce existing tensions. It also allows a better idea of political changes needed in order to facilitate the take-up of these strategies in real life and by more people than just the participants of the process.

The fourth step would result in a behavioural change (top level of the Iceberg Model), ideally assisted through political changes and clarity about resulting changes through the implementation of this strategy (systems). This change results from changed values, beliefs and culture through a better individual and shared awareness of needs. That way chances increase that the transition is persistent.

Application of THANCS

1. Case: Flying on business trips

THANCS was applied within a seminar at SERI, the affiliation of one author. In the beginning we did a brainstorming of exciting conflicts and decided on the following: 'business trips by plane'.

Following the 4 steps, we first discussed the conflict in more detail. The conflict can be differentiated into two. One would be whether we use planes or another mode of transport to come to the place where the meeting or the conference takes place. If train is possible and does not take too long, we would choose the train option. The second type would be that the place of the meeting or conference is too far away to be reached by other modes than flying. This one was chosen. Being a sustainability researcher this naturally brings along a conflict.

First of all it is an intra-individual conflict, because we have the need for protection of the others who live now and in future and by flying we increase greenhouse gas emissions strongly which leads to climate change in the future. It is thus also an inter-generational conflict as by fulfilling our needs now we certainly harm future generations to meet their needs, as climate change leads to a change of ecosystems and their services, which strongly impact on humans' well-being.

In a second step the participants of the seminar were reflecting on the needs concerned, which are met and unmet by flying on a business trip. This was done individually and the results were then shared in the group (step 3).

The following needs were mentioned as being met:

Participation in the scientific community; personal identity can be strengthened; affection as relations can be built or strengthened; understanding by presenting own research results and listening to those of others; protection: in the meetings and conferences the issue discussed is

sustainable development; the results of these meetings can lead to innovations or policy recommendations that support SD.

Protection for the future generation due to climate change is the main unmet need; the need for identity might also be harmed as some base their identity among others on the value of justice for current and future generations. With our westernized lifestyles, i.e. including regular flights on holidays or business trips, we rather increase the gap of opportunities and resources between the rich and the poor countries.

By sharing the results of the reflection the group became aware that more or less the same needs were concerned although some brought new needs in which allowed others to re-reflect their results. This process led into a lively discussion.

Finally the participants were looking for other strategies or changes of the strategy “flying to a meeting/conference”. Other strategies would be videoconferencing or skype calls which can of course only partially substitute a face-to-face meeting. The other idea was to combine the business trip with other meetings or visits of projects/institutes or holidays so that one flight can serve several purposes. Carbon offsetting was mentioned as well as doing something good in the country where the trip is going to (spending for NGOs...) or for countries strongly affected by climate change.

The feedback from the participants was positive, in particular they honoured the combination of step 2 and 3, namely first reflecting upon one’s own needs and then exchanging thoughts and feelings. What was seen as missing were special creativity techniques for step 4.

2. Case: Using the car for daily life

One author had the chance to apply the method within the Cross Faculty Course ‘Science and Citizens meet Challenges of Sustainability’ at the University of Luxembourg in May 2011. About 20 students coming from different disciplines and backgrounds (some of them are already working, for instance in NGOs, as teachers or environmental psychologists) took part in the unit. During the seminar, 4 groups were built – 2 applied the ethical value matrix (<http://www.ethicalmatrix.net/>) to solve the conflict of building windfarms or not, 2 applied THANCS. One group chose to work with the windfarm conflict as well, the other one with the usage of car in everyday’s life.

Already in the forefront of the unit the students were asked to think about conflicts, write them down and put them on the course platform. During the unit they presented the conflicts and one group chose the usage of car conflict.

In Luxembourg – as soon as one lives outside the city centre – it is inconvenient to use public transport. Especially with children it is complicated and time consuming. Therefore most of the group members have cars and use them nearly daily. However, except one all of them were not happy to rely on the car, they felt a tension.

Using a car creates intra-individual and intergenerational tensions mainly due to the same reason as in the conflict of using a plane for business trips, but also the intra-societal dimension is involved here. By using a car one might endanger the security of others (pedestrians, bikers), pollute the air and use space (parking, congestion).

After reflecting individually on the needs involved, most of the participants came up with maximum 5 conflicts met or unmet. Interestingly they were not the same among them, but in the end all needs from the list of basic needs from Max-Neef (1991: i.e. subsistence, protection, affection, understanding, participation, idleness, creation, identity, freedom) were mentioned. By listening to the others most of them increased their needs' list.

Again we saw that one need can be harmed and met by the same option:

- Protection: using a car instead of a bike or walking is safer for my children or my old parents and on the other hand I endanger other street users and the next generations if I use a car.
- Subsistence: Owning a car allows me do my job (where a car is needed) but the fuel price and the car price are so high that my subsistence is also endangered

If a strategy meets and harms the same need simultaneously, then a possible procedure would be to decide which part of the need (protection of me and my family or those of others) is more important and then look for strategies that support this. If such decision is not possible, then another way would be to find strategies which at least do not harm a need, but are rather neutral to one part and meet another one (in our example: meet the protection of myself and do not harm others).

As all needs were concerned, the participants voted which needs were the most important before they thought of alternative strategies, which allow them to fulfil those needs (as all cannot be met simultaneously). A bunch of interesting ideas were born, “half-cars” (two families decide to use their cars each only on 3.5 days a week, so that one car can be saved), normal car sharing and to start initiatives for school buses.

The feedback of this group was very positive. Thinking, writing and talking about their needs and values was new to most of them and created awareness as well as positive group energy. It helps a group finding a common ground about a conflicting issue and is therefore a good tool to

start a discussion. In addition it does not need scientific knowledge or expert input, but can be done by everybody.

Conclusion and Outlook

In this paper we explained why a transition to SD is not an easy way but also characterised by value conflicts.

Relating the individual to the collective perspective was not only done through describing the motivation of the authors, but also by distinguishing three different tensions (intra-individual, intra-societal and intergenerational); examples were given. The interweavement of these tensions re-enforced the conviction that sustainability research and practice has to better include intra-individual perspectives when aiming for sustainable development.

Needs-based processes provide a means of addressing SD in a more encompassing and more compassionate way than processes that structure knowledge according to substitutability or a segregation into three or more dimensions; they thus offer a promising approach for realizing SD as a set of values.

Taking into account what has been said right above, there is not one perfect leverage point for starting a transition, but different ones which can be seen as a set. It consists of increasing the opportunities space including the freedom to choose, of stimulating creativity to find other strategies to meet their needs (if the common strategies are unsustainable, i.e. do not permit all living and not yet living persons to meet their needs decently) and of setting such framework that motivates citizens, facilitators and decision makers to look below the top iceberg level (figure 1) to the individual inside level, i.e. to needs, values, beliefs and emotions. That way the pursuit of SD can be combined with a high quality of life. Needs fulfilment leads to higher well-being, which is a constitutive part of quality of life.⁹

But a high quality of life is not per se compatible with SD, as shown above in this paper when we described the tensions. We have introduced THANCS, a four-step process to deal with these tensions. Bringing the four-step process and policy actions together means to start each intervention by reflecting about possible tensions that could arise, looking to their reasons below the waterline, hence to address emotions, values, beliefs and – very important – the needs that people aim to meet.

⁹ The overall objective of SD is to secure and increase the resources and capabilities necessary for increasing the quality of life for all people as a precondition for needs fulfilment and for individual well-being (European Commission, EU SDS 2007). We do not see Quality of life as a precondition for needs fulfilment and well-being, but as a resultant of sufficient capabilities leading through needs fulfillment to a high well-being (cp. Rauschmayer et al. 2011).

Methods that could be used for such processes include, for example, needs-based multi-criteria analysis (Cruz 2009 et al.; Rauschmayer 2005, Guillen-Royo 2010), participatory scenario workshops, wisdom councils (Rough 2002), systemic constellations (Sparrer 2007), dialogue, sociocratic moderation and other types of process work (Mindell 1995). What these have in common is a commitment on the part of SD scholars as process managers to explicitly incorporate (the expression of) emotions and values.

We do not assume that the four-step process and the suggested methods can be immediately used on a large scale. First, methods have to be tested and adapted to the context¹⁰ (e.g. governance level, economic or cultural development, issue at hand), and the organisational conditions to be established (e.g. trained facilitators). Second, we do not assume that the majority of the world's inhabitants are yet open and prepared for such processes. However, transition starts with processes and actors in niches (Loorbach and Rotmans 2006). We believe that there is a substantial amount of such niche actors either already reflecting on their live and work in an integrative manner or open to start such processes – if supported through governance. Much has to be better understood and, foremost, to be done in order to support such a shift towards SD. We see main challenges in the practical implementation of our suggestion, seen the climate of mistrust, competition and impression of scarcity (and herewith of fear) in society at large and in polity in particular. Therefore we cannot yet show that this process can be translated onto a generic level. This is one of the big future challenges we want to address in our work.

We are sceptical as to whether our attempts to move towards SD are sufficient; at the same time, engaging ourselves in this attempt is – as we see it – a better strategy to meet our needs than to resign, to become cynical or to go into hedonic well-being only.

¹⁰ In the beginning of June 2011 the authors organised an explorative ESF workshop where more than 20 scientists tested the above mentioned methods and others on themselves to see whether and when they are appropriate in their work.

References

- Arzheimer K. 2005. 'Freiheit oder Sozialismus?' Gesellschaftliche Wertorientierungen, Staatszielvorstellungen und Ideologien im Ost-West-Vergleich. In: Gabriel OW, Falter JW, Rattinger H. (eds.). *Wächst zusammen, was zusammen gehört?* Nomos: Baden-Baden, pp285-313.
- Beck DE, Cowan CC. 1996. *Spiral Dynamics: Mastering Values, Leadership and Change*. Blackwell Publishing: Malden, Oxford, Carlton.
- Bellin G. 2010. For Performance Consultants International: Transformation Workshop, Facilitator Material.
- Binswanger M. 2001. Technological progress and sustainable development: what about the rebound effect? *Ecological Economics* 36: 119-132.
- Brandner. 2010. Personal interview; www.nachrichten.at/oberoesterreich/klima [01. April 2010]
- Buber M. 1995. (orig. 1923). *Ich und Du*. Reclam: Stuttgart.
- Cruz I, Stahel A, Max-Neef MA. 2009. Towards a systemic development approach: Building on the Human-Scale Development paradigm. *Ecological Economics* 68: 2021-2030. DOI: 10.1016/j.ecolecon.2009.02.004.
- Dryzek JS. 1996. Strategies of ecological democratization. In: Lafferty WM, Meadowcroft J. (eds.). *Democracy and the environment: problems and prospects*. Elgar E.: Aldershot, pp108-123.
- Guillen-Royo, M., 2010. Realising the 'wellbeing dividend': An exploratory study using the Human Scale Development approach. *Ecological Economics* 70, 384-393.
- Hinterberger F, Hutterer H, Oman, I, Freytag E. (eds.). 2009. *Welches Wachstum ist nachhaltig? Ein Argumentarium*. Mandelbaum Verlag: Wien.
- Howarth RB. 2007. Towards an operational sustainability criterion. *Ecological Economics* 63: 656-663.
- Jackson T. 2009. *Prosperity without Growth. Economics for a Finite Planet*. Earthscan.
- Jäger J. 2007. *Was verträgt unsere Erde noch? Wege in die Nachhaltigkeit*. Fischer Verlag: Frankfurt/Main.
- Layard R. 2005. *Happiness: Lessons from a new science*. Penguin Press HC.
- Leßmann O. 2010. Sustainability as a challenge to the capability approach. In: Rauschmayer, F., Omann, I., Frühmann, J. 2011. *Sustainable Development: Capabilities, needs and well-being*. Routledge: London, pp 43-61.
- Loorbach D, Rotmans J. 2006. Managing transitions for sustainable development. In: Olshoorn X, Wieczorek AJ. (eds.). *Understanding Industrial Transformation: Views from Different Disciplines*. Springer, Dordrecht, pp187–206.
- Max-Neef, MA. 1991. *Human Scale Development: conception, application and further reflections*. The Apex Press.

- McIntosh S. 2007. *Integral Consciousness and the Future of Evolution: How the Integral Worldview Is Transforming Politics, Culture, and Spirituality*. Paragon House.
- Mindell A. 1995. *Sitting in the Fire: Large Group Transformation using Conflict and Diversity*. Lao Tse Press: Portland, OR.
- Nef (New economics foundation) 2009. *The Great Transition*. London.
- Nida-Rümelin J. 1997. Praktische Kohärenz. *Zeitschrift für philosophische Forschung* 51(2): 175-192.
- Omann, I., Rauschmayer, F. 2011. Transition towards sustainable development: Which tensions emerge? How do deal with them? In: Rauschmayer, F., Omann, I., Frühmann, J. *Sustainable Development: Capabilities, needs, and well-being*. Routledge: London, pp. 114-163.
- O'Neill J. 2010. The overshadowing of needs. In: Rauschmayer, F., Omann, I., Frühmann, J. *Sustainable Development: Capabilities, needs, and well-being*. Routledge: London, pp. 25-42.
- Parfit D. 1983. Energy policy and the further future: the identity problem. In: MacLean D, Brown PG. (eds.). *Energy and the Future, Rowman and Littlefield*. Totowa: New Jersey, pp166-179.
- Parfit D. 1990. Personal Identity and the Separateness of Persons. In: Glover J. (ed.). *Utilitarianism and Its Critics*. MacMillan: New York, pp93-102.
- Rauschmayer F. 2005. Linking emotions to needs. A comment to Fred Wenstøp's article "Mindsets, rationality and emotion in multi-criteria decision analysis". *Journal of Multi-Criteria Decision Analysis* 13: 187-190.
- Rauschmayer F, Omann I, Frühmann J. 2011. Needs, capabilities, and quality of life. Reconceptualising sustainable development. In: Rauschmayer, F., Omann, I., Frühmann, J. *Sustainable Development: Capabilities, needs, and well-being*. Routledge: London, pp. 1-24.
- Rauschmayer F, Muenzing T, Frühmann J. 2011b. A plea for the self-aware sustainability researcher. Learning from business transformation processes for transitions to sustainable development. In: Rauschmayer, F., Omann, I., Frühmann, J. *Sustainable Development: Capabilities, needs, and well-being*. Routledge: London, pp. 121-143.
- Rijsberman F. 1999. *Conflict Management and Consensus Building for Integrated Coastal Management in Latin America and the Caribbean*. Inter-American Development Bank: Delft, the Netherlands.
- Robinson J, Carmichael J, Van Wynsberghe R, Tansey J, Journeay M, Rogers L. 2006. Sustainability as a problem of design: interactive science in the Georgia Basin. *The Integrated Assessment Journal Bridging Sciences and Policy* 6(4): 165–192.
- Rotmans J, Kemp R, Van Asselt M. 2001. More evolution than revolution: transition management in public foreign policy. *Foresight* 3(1): 15-31.

- Rough J. 2002. *Society's Breakthrough! Releasing Essential Wisdom and Virtue in All the People*. AthourHouse.
- Schmidt-Bleek F. 1993. *Wieviel Umwelt braucht der Mensch? MIPS - Das Maß für ökol. Wirtschaften*. Birkhäuser.
- Siebenhüner B. 2005. Can assessments learn, and if so how? A study of the IPCC. In: Farrell AE, Jäger J. (eds.). *Assessments of Regional and Global Risks*. Resources for the Future: Washington DC, pp166 -186.
- Sparrer I. 2007. *Miracle, Solution and System - Solution-focused systemic structural constellations for therapy and organisational change*. SolutionsBooks: Cheltenham.
- Spillemaeckers S, Van Ootegem L, Westerhof GJ. 2010. From individual well-being to sustainable development - A path where psychologists and economists meet. In: Rauschmayer, F., Omann, I., Frühmann, J. *Sustainable Development: Capabilities, needs, and well-being*. Routledge: London, pp. 62-82.
- Swyngedouw E. 1997. Neither Global Nor Local. 'Glocalization' and the Politics of Scale. In: Cox KR. (ed.). *Spaces of Globalization: Reasserting the Power of the Local*. Guilford Press: New York, London.
- Tabara JD, Pahl-Wostl C. 2007. Sustainability learning in natural resource use and management. *Ecology and Society* 12/2, <http://www.ecologyandsociety.org/viewissuephp?sf=28>
- The Social Learning Group. 2001. *Learning to Manage Global Environmental Risks*. MIT Press: Massachusetts, USA
- Weaver P, Jordan A. 2008. What roles are there for sustainability assessment in the policy process? *International Journal of Sustainable Development* 3(1).
- Von Weizsäcker EU, Lovins A, Lovins H. 1995. *Faktor vier: Doppelter Wohlstand - halbiertes Verbrauch*. Der neue Bericht an den Club of Rome. Droemer Knauer: München.
- Von Weizsäcker EU, Hargroves K, Smith MH, Desha C, Sasinopoulos P. 2009. *Factor Five. Transforming the Global Economy through 80% Improvements in Resource Productivity*. Earthscan.
- Wilber K. 1981. *Up from Eden*. Quest books.
- Wilber K. 1995. *Sex, Ecology, Spirituality: The Spirit of Evolution*. Shambhala: Boston.
- Wilber K. 1997. *The Eye of Spirit. An Integral Vision for a World Gone Slightly Mad*. Shambhala: Boston.
- Worldwatch Institute. 2010. *State of the World 2010 Transforming Cultures from Consumerism to Sustainability*. Earthscan.
- WWF. 2006. *Living Planet Report 2006*.