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# The psychology of denial concerning climate mitigation measures: evidence from Swiss focus groups

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## Abstract

Various studies of public opinion regarding the causes and consequences of climate change reveal both a deep reservoir of concern, yet also a muddle over causes, consequences and appropriate policy measures for mitigation. The technique adopted here, namely integrated assessment (IA) focus groups, in which groups of randomly selected individuals in Switzerland looked at models of possible consequences of climate change and questioned specialists as to their accuracy and meaning, revealed a rich assembly of reactions. Respondents were alarmed about the consequences of high-energy futures, and mollified by images of low-energy futures. Yet they also erected a series of psychological barriers to justify why they should not act either individually or through collective institutions to mitigate climate change. From the viewpoint of changing their lifestyles of material comfort and high-energy dependence, they regarded the consequences of possible behavioural shift arising from the need to meet mitigation measures as more daunting. To overcome the dissonance created in their minds they created a number of socio-psychological denial mechanisms. Such mechanisms heightened the costs of shifting away from comfortable lifestyles, set blame on the inaction of others, including governments, and emphasised doubts regarding the immediacy of personal action when the effects of climate change seemed uncertain and far away. These findings suggest that more attention needs to be given to the social and psychological motivations as to why individuals erect barriers to their personal commitment to climate change mitigation, even when professing anxiety over climate futures. Prolonged and progressive packages of information tailored to cultural models or organised belief patterns, coupled to greater community based policy incentives may help to widen the basis of personal and moral responsibility. © 2000 Elsevier Science Ltd. All rights reserved.

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## 1. Introduction

This paper assesses how groups of informed citizens judge their personal responsibility for climate change mitigation through the lens of the integrated assessment (IA) focus group. In particular, it looks at a number of psychological devices that people select to justify the emotional dissonances they can experience when confronted with the challenge of changing much preferred consumption patterns and lifestyles in the course of reducing greenhouse gases.

The continuing claim from policy analysts and commentators (for example Gardener and Stern, 1996; Kempton, 1997, p. 20) is that much of what is taken as societal assessments of possible behavioural response to climate change mitigation measures is based on plausible, but untested, and often misleading or mistaken, presumptions. Furthermore, the lack of effective citizen appraisal of their possible role in determining the actual nature of climate futures remains an under-explored element of climate change research. Lorenzoni and her colleagues (in press) show how policy makers and business managers are ill-prepared to commit to a particular strategy and to specific investment for possible climate outcomes, largely because they do not relate their prognoses for periods to over 5 years. Furthermore, managers do not always fully appreciate just how influential are

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their possible actions over the coming two decades in influencing the actual character of future climates, say in 100 years' time.

There is an important social and political advantage of our approach insofar as it helps to legitimise climate change decisions from the bottom up. It endows stakeholders with some ownership of the difficult issues relating to climate commonly discussed at regional, national level. In particular, the mix of possible futures presented in our scenarios actively encourages individuals at a regional level to claim some ownership for the sort of difficult trade-offs that will need to be made by governments in relation to climate impacts (Lorenzoni et al., 2000, in press).

The significance of the research quoted above is that, when confronted with the evidence of individual responsibility for the possible characteristics of a future climate, respondents in a position of managerial authority realised how inadequately prepared they were for making effective choices. This conclusion fits into the methodological framework for the case study that follows.

The research reported on below suggests that denial over the necessity to adjust behaviour and lifestyle patterns is a function of discourse as it is of more fundamental personal, social and psychological influences that are not readily shifted around by language or by exhortation unless the process of awareness raising is prolonged and set in constructive engagement with a wider array of socially sanctioned moral norms. Kasemir et al. (1999, p. 3) conclude:

Without integrating the points of view of citizens, environmental policy runs the risk of getting stalled on the early implementation phase. Only a climate policy consistent with the aspirations of citizens will have a chance of success.

This paper has the following objectives:

- to justify the advantages of the IA focus group approach to exploring underlying motivations of individuals, in group settings
- to summarise the state of knowledge on public opinion research on climate change and embed this evidence in social, and social psychological theories of cultural models, cognitive dissonance and social identity
- to explore underlying socio-psychological theories in order to explain why such barriers to civic responsiveness exist, so as to inform policy makers as to appropriate consequences for future strategy in a participatory democracy
- to examine why a cross-section of Swiss citizens appear to be unable to act in accord with their preference for a low-energy future which they regard as an essential antidote to climate change

- to suggest constructive new approaches to the co-ordination of socio-psychological and political theory so as to create appropriate mixes of policy measures and awareness-raising experiences that will help citizens to address denial and reconciliation.

## 2. Methodology and IA focus groups

The findings that follow come from the Swiss Integrated Climate Risk Assessment (ICRA) project. This is one of 15 sub-projects of the interdisciplinary project Climate and Environment in Alpine Regions (CLEAR) funded by Swiss National Science Foundation. CLEAR is an effort to increase understanding of the potential impacts of climate change for Switzerland and to provide policy relevant information which can support decision-making. One important aim of the CLEAR project is to develop an overall methodology for integrated climate risk assessment. ICRA sought to integrate lay people in policy-supporting activities and to generate and analyse integrated assessments. These integrated assessments comprise areas of inquiry such as the identification of options for and constraints on new policy strategies. Such constraints include the social acceptance of likely measures, people's feelings of moral obligation and willingness to act, and the role of scientific uncertainty in the formation of lay-judgements about climate risk (Dürrenberger et al., 1997).

The method for analysis selected here was the conduct of Integrated Assessment IA focus groups. The "focus group" approach combines two social scientific research methods. One is the *focused* interview, in which an interviewer elicits information on a topic. The other is the *group* discussion, in which a small, relatively heterogeneous group of people discuss a topic raised by a skilled moderator (Dürrenberger et al., 1997). The focus group methodology is widely used in public opinion research and in marketing (Morgan and Krueger, 1998), which in turn was developed by social scientists studying mass communication (Merton, 1987). The point of the exercise lies in the ability to observe social processes of opinion formation in which some new information is taken into account (Jaeger et al., 2000).

In IA focus groups the common stimulus is given by exposure to an interactive IA-computer model or a similar piece of information. In the present case, the computer models used included IMPACTS and OPTIONS<sup>1</sup> as well as the TARGETS, IMAGE and POLESTAR models also used in the ULYSSES project. The IA focus

<sup>1</sup>The models have been developed by C. Pahl, C. Schlumpf and others.

groups meet several times in order to reach a more in-depth discussion of the topic under consideration. Five meetings of two and a half hours each were typical (Jaeger et al., 2000).

Barriers to behaviour which impede energy reduction measures were presented on the basis of 14 IA-focus groups carried out within the German-speaking part of Switzerland in 1997–1999. The typical group size was about 6–8 people. The participants were selected by a stratified random sample from the adult Swiss population. Using the official files of telephone numbers, people were called at random under the constraint that each group should be heterogeneous with regard to gender, age, education, and environmental attitudes. Participants were rewarded with an amount of money corresponding to the reward paid to members of Swiss county parliaments when they engage in committee work (Jaeger et al., 2000).

The evidence was analysed in a more structured way than is usual with focus groups. The group discussions were videotyped and the tapes transcribed. A set of topics of primary interest for the present investigation was designed and the portions of the overall conversation relating to any one of these topics were transcribed on computer files. Next, a list of categories of possible statements was established and for each item a code was defined. Then the transcribed conversations were labelled with these codes in the Atlas software for qualitative content analysis. With this technique, it was possible to scan all transcripts for specific topics (Jaeger et al., 2000). Additionally, it is possible to make quantitative statements, e.g. how many quotations could be found concerning different codes, or how much particular images or metaphors were used.

Besides the transcripts, further output of the IA focus groups included minutes, individual questionnaires, responses to collectively generated collages, and citizen reports. The questionnaires were filled out before and after the interaction with the IA computer models, so that any potential change of knowledge and attitudes could be recognised.

### 2.1. Citizen report

Box 1 summarises the key issues discussed by the IA focus groups in the process of reaching common understanding of all the main themes raised. The aim was to enable participants to synthesise contrasting and conflicting evidence, wherever possible. This process also assists policy analysts to improve their own understanding of how representative panels of citizens think about the implications of climate change, possible desirable futures, and what might be their responsibility in their future.

#### Box 1

The citizens' report structure

1. Do you think there is a problem of climate change? If yes, then what is the problem?
2. Given this, how should we live in 30 years' time here (e.g. in Zurich)?
3. What should be done so that we can get there?
4. Given this, how much energy use compared to today is appropriate in total, and in the different sectors (e.g., transport, households)?
5. Who should take action? And when?
6. What do you think will be difficulties in getting there (barriers of action)?
7. If you have anything else you want to note down, please do so.

The evidence from the citizens' reports provided the basis for the creation of the two "energy futures" on the form of "collages" of participant-created images.

### 2.2. Collages

In this study, the collage was used as a pictorial representation of various images associated with possible outcomes of climate and energy futures. In order to produce the collages the groups were split in two halves in the first session. One sub-group was asked to think about how the region in which the participants live might look like 30 years from now if energy use would develop more or less as in the past — a business-as-usual (BAU-) scenario (high-energy future). The other sub-group was given a similar task, this time with the constraint that energy use would be reduced in the order of magnitude of 30–50% in comparison with the present — a scenario of drastic reduction in energy use. The sub-groups then presented their collages to each other. These conversations were videotyped and transcribed so that it is possible to understand better the various interpretations of the collages.

Swiss citizens generally perceive climate change risks as a serious issue (along with other environmental problems). Accordingly, they often perceive a world characterised by high levels of energy use as rather unattractive if not nightmarish. Consequently, a world characterised by low levels of energy use is often perceived as an attractive option (Jaeger et al., 2000).<sup>2</sup> Fig. 1 portrays one of the collages associated with a high-energy future.

Fig. 2 shows the frequency of images elicited by the IA focus groups when addressing the two energy scenarios. It will be seen that the images linked to the low-energy

<sup>2</sup> Similar preferences were expressed across Europe in the IA-focus groups organized within the ULYSSES project (Kasemir et al., 2000).

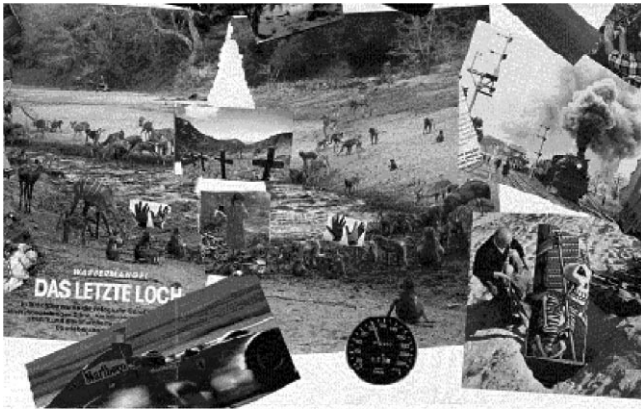


Fig. 1. Detail of a collage associated with a high-energy future (BAU-scenario).

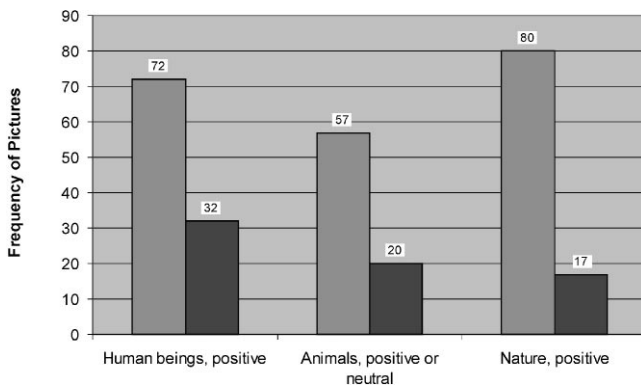


Fig. 2. Frequencies of emotionally positively charged images in collages of a low-energy future (blue) and a high-energy future (purple).

scenario were interpreted as being friendly to people, animals, biota generally, and to vulnerable groups such as women and children. The evidence suggests that participants tended to regard low-energy futures as highly desirable for the planet and its human family across a whole range of avoidable catastrophes.

Fig. 3 reinforces the conclusions of Fig. 2 by showing that a high-energy scenario is associated with images of catastrophes, monsters, war, destroyed nature and chaos generally. Again there was remarkable consistency amongst all the participants over a coherent set of perceptions of crises linked to high-energy futures.

This apparent consensus over the “goodness” of low-energy futures revealed a fundamental contradiction. This was that almost nobody was prepared to take the kinds of personal actions deemed necessary to achieve such a future, based on mitigated climate change. To explain this we follow a two-fold approach. Firstly we review theoretical, mostly socio-psychological, approaches to explain a big part of this discrepancy. Secondly, through quotations arising from the IA focus groups, we show how denial can coherently be maintained.

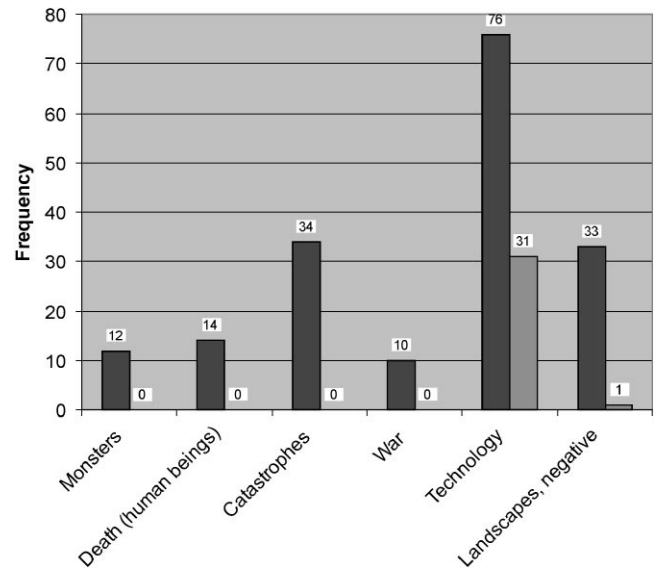


Fig. 3. Number of collages containing emotionally negatively charged images: low-energy future (blue) and high-energy future (purple).

### 3. Public opinion and climate change: evidence and underlying theory

In the early 1990s a number of studies of public opinion over climate change were conducted (Bostrom et al., 1994; Read et al., 1994; Kempton et al., 1995; Kempton, 1997). These have been helpfully summarised by Thompson and Rayner (1998, pp. 365–389). The general observation is that the majority of citizens have fairly loose knowledge of the causes and underlying science of climate change. They do not fully appreciate what “greenhouse gases” are, and they do not link climate change to energy systems to transport in any coherent manner. One important consequence is that they cannot readily relate a possible policy option, for example a carbon tax, to a climate change mitigation measure. This is particularly the case where the putative policy option is contentious and conflicts with underlying political ideologies. In his survey of American political obstacles to the Kyoto Protocol, Eugene Skolnikoff (1999, p. 44) concludes

the issue of climate policy is likely to be pressed by the more conservative elements of the Republican Party because it offers many opportunities to exploit public opposition to new taxes and the export of jobs as well as its desire for smaller government and a minimal role for the United Nations.

Nevertheless, these same studies also showed that a significant minority in the US hold strong views that climate change was a serious issue, that there were important moral and political issues involved, and, generally, that the matter was more pressing than believed by the professional scientists. From the European

perspective, the CLEAR studies have shown that it is very much a majority which holds such strong views. The problem is that there is a gap between “views” and actions. These findings are corroborated in a study by Kasemir et al. (2000, p. 4). The discovered, from a range of IA focus groups, a deep reservoir of moral concern over climate change as a profound social and environmental matter.

The European citizens who participated in the focus groups often saw the prospect of climate change as very frightening, and adopted an ethical rather than an economic approach to framing their discussions on climate impacts. (...) In general participants were also in favour of mitigation measures even in the face of scientific uncertainty, that is they usually based their views of the climate issue on the precautionary principle (Kasemir et al., 2000, pp. 39–40).

Kempton (1997, p. 14) attributes this underlying concern to cultural models of anxiety about environmental deterioration generally, and to underlying environmental values of responsibility for planetary health. He concludes that these models are rooted in coherent patterns of both individual and shared outlooks. The implication is that policy measures designed to mitigate greenhouse gases, as proposed by experts or insider analysts, but without the sensitivity of appreciating these rich cultural frameworks that may reinforce existing prejudices, may go terribly wrong when it comes to political proposals such as carbon taxes, energy levies, restriction on driving or tough regulatory requirements for energy efficiency or insulation of commercial and residential property.

Kempton et al. (1995, p. 215) also point out that core values enshrined in these attitudinal arrays may compete with other perspectives, such as rights to choose, freedom of expression, reduction in governmental interference in personal behaviour, any or all of which can result in an inconsistent response to possible climate change policy options.

### 3.1. Socio-psychological theories of dissonance and denial

It is well established in socio-psychological theory that attitudes help a person to mediate between the inner demands of the self and signals arising from the outside world (Katz, 1960; McGuire, 1969; Pennigton et al., 1999). These external cues may relate to influences of social networks, and views of the appropriateness of lifestyle and consumption behaviour. Both social norms and cultural norms provide significant biases for such attitudes. But so, too, does personal experience, and the “certainty arrays” of co-ordinated beliefs that are formed to assist in their response to complex, and possibly intimidating, requirements.

The pattern of mediation between self and social context is assisted by four functions, namely the *adaptive function*, the *self-expressive function*, the *ego-defensive function* and the *knowledge-function*. Adaptation is depen-

dent on forming positive associations with persons or outlooks with which the individual shares a sense of common identification. This function is hedonistic in that it serves the purpose of increasing satisfaction or pleasure and avoiding punishment or pain. Self-expression is displayed by the need to show to others about one’s inner values or feelings, i.e. to be externally self-conscious. One aspect of this is the expression of self-identity, namely a wish to be in a state of inner control, yet externally appreciated. Ego-defensiveness serves to protect people from their own inconsistencies and their negative feelings towards other people. With respect to self-protection, attitudes may serve to maintain self-image. Knowledge-processing allows people to process and order information into coherent and organised patterns in order to simplify and understand complex and possibly conflicting issues (Pennigton et al., 1999, p. 75). This is close to the notion of cultural models researched by Kempton.

For the most part, all these functions seek to establish a sense of consistency, and hence inner calm (Heider, 1946; Festinger, 1957; Pennigton et al., 1999). Research on schematic patterns in social psychology (Taylor and Fiske, 1981) indicates that both the encoding and the retrieval of information are often guided by personal desire to maintain cognitive consistency.

The lack of consistency is the state of *dissonance*. In general, individuals experiencing dissonance seek to resolve it, deny it, or displace it. We will see from the IA focus group research reported on below that, for the most part, denial or displacement act powerfully to maintain the gap between attitude and behaviour with regard to climate change norms.

From the brief review of the other functions relating to attitude formation, it will be seen that reorganising knowledge, changing social identification, appealing to self-image and enabling constructive adaptation may all have to be involved if attitudes and behaviour towards climate change are to resonate in a coherent manner.

Attitudes differ from behaviour for a number of well-known reasons. One explanation is that offered from the evidence presented so far, namely that attitudes to climate change can relate to a general societal norm, while behaviour rests with specific individual responsibility. Another, more common interpretation, is that attitudes cover a vast array of cognitive processes and compositions that remain chaotically in conflict for the most part, except when contradictions have to be confronted. Hillmann (1989, p. 55) summarises the wide basis for complexity in attitudinal patterning.

Conceptions about value, meaning, purpose and utility, preferences, predilections, and interests, conceptions about taste, pretensions and wishes, the aspirations of rewards, gains, profits and the heightening of one’s ego, avoidance of penalties, disadvantages, costs and the loss of one’s ego, etc.

Where behaviour is not routine, values enter (Lantermann and Döring-Seipel, 1990). Such values are selected for consistency and support, namely by coinciding behaviour with underlying moral norms. Such norms shape the justification for action or inaction. According to Wortmann et al. (1993, p. 81), the following dimensions of attitude contribute to environmentally dependent behaviour:

- the need for personal comfort
- the belief in technological solutions
- the belief in personal contribution to mitigation
- the demand for a justifiable relationship between personal costs and social gains
- the acceptance that there is indeed a crisis

To these we add:

- the loss of trust in government generally, as well as in its capacity to deliver effective policy measures.

Furthermore, internal inconsistencies can occur between verbal expressions of behaviour in one setting and actual behaviour in another (Tampe-Oloff, 1986). This distinction can also be influenced by emotional unease over any discrepancy. To avoid this unease, people look for cues to justify continued behaviour in the face of a socialised moral norm to the contrary.

One area of consistency analysed here lies in the possible disjunction between a personal preference for a particular lifestyle, consumption habit, or behavioural choice and the need to respond effectively to climate change mitigation strategies. In short, people may profess anxiety over climate change, but be faced with internal resentment or even denial over what they cannot accept as a justifiable change in behaviour (e.g. to travel by public transport, ride a bike in the rain or invest in high cost domestic insulation). The research reported on below suggests nine ways in which this denial may occur:

- metaphor of displaced commitment — *I protect the environment in other ways*
- to condemn the accuser — *You have no right to challenge me*
- denial of responsibility — *I am not the main cause of this problem*
- rejection of blame — *I have done nothing so wrong as to be destructive*
- ignorance — *I simply don't know the consequences of my actions*
- powerlessness — *I am only an infinitesimal being in the order of things*
- fabricated constraints — *there are too many impediments*
- “After the flood” — *what is the future doing for me?*
- comfort — *it is too difficult for me to change my behaviour* (Schahn, 1993, pp. 59-60).

From an emotional viewpoint such responses help to assuage guilt, to reinforce victim status, to justify resentment or anger, and to emphasise the negative feelings towards disliked behaviour (e.g. the disagreeable qualities of relying on public transport and the loss of social prestige involved).

A common theme throughout this denial processing, is that of the well-known *tragedy-of-the-commons*.

In tragedy-of-the-commons situations, behavior that makes sense from the individual point of view, when repeated by enough individuals, ultimately proves disastrous to society. (...) Each individual gains, financially or otherwise, by consuming the natural resource. Each, furthermore, sees little harm in doing so since the resource is so huge in size and their impact on it is so small (Gardener and Stern, 1996, p. 23).

For the purposes of this analysis, this theorem (Hardin, 1968) usually involves ordinary people doing ordinary things, rather than villainous or greedy people doing especially nasty things (Ophuls, 1977 in Gardener and Stern, 1996, p. 26). The Swiss citizens are not evil people who want to harm others deliberately. Furthermore, even if all citizens understand that their actions are contributing to climate change, each is powerless to stop the process via unilateral individual action.

Based on this theoretical perspective, and especially taking into account the “barriers of denial” listed above, we hypothesise that denial in the face of political and moral exhortations to change behaviour in the cause of mitigating climate change is reinforced by the following:

- an unwillingness to give up customary habits and favoured lifestyles which are closely associated with a sense of self-identity (the “comfort” interpretation)
- the construction of attitude and behaviour connections that regard any costs to the self as greater than the benefits to others (the “tragedy-of-the-commons” interpretation)
- a lack of acceptance that the climate problem is as serious as made out, and that a belief in any case it can be resolved by recourse to technological and regulatory innovation (the “managerial-fix” interpretation)
- an underlying lack of faith in the capacity of government to deliver its side of the bargain over climate change mitigation (the “governance-distrust” interpretation).

These four “interpretations” are closely interlinked. The richness of the data set reveals this to a remarkable extent. The separation of these interpretations reported below is largely to clarify nuances of outlook. It is also worth bearing in mind that well-facilitated focus groups using a range of approaches can lead to a healthy reinforcement of views amongst participants, who feel comfortable about gradually manoeuvring into consistency.

#### 4. Findings: perceived barriers to action

What follows is a selection of quotations arising from the IA focus groups. These illustrate the four “interpretations” that resonate with the literature, but they actually emerged from the discussions, spontaneously and coherently. While the literature provides a framework, the evidence we use below is displayed in the form of representative quotations reflecting the aggregated outlook of citizens responding to a well-designed range of stimuli to offer their own authentic perspectives.

##### 4.1. *The comfort interpretation*

The most powerful zone for denial was the perceived unwillingness to abandon what appeared as personal comfort and lifestyle-selected consumption and behaviour in the name of climate change mitigation. Participants regarded consumption as a social as well as an economic good, so found it too difficult to accept that any personal sacrifices would be worth the social gain. Subsequent quotations indicate that both, the “tragedy-of-the-commons” and the “governance-distrust” interpretations reinforce such feelings.

I find it so hard to think differently because it really interferes with your life. If, for instance, you have to rely on public means of transport and depend on their schedules ... I think that’s the main problem: you have to give up quite a bit of your comfort (Group 4, Zurich).

Perhaps we are a bit too lazy, perhaps society is too indolent to engage in environmental issues, to orient individual lives by ecological criteria, (...) to save energy. And as long as the big collapse has not yet occurred, as long as the catastrophe has not yet approached enough, people just pursue their comfort, unless there are financial incentives (Group 6, Sissach).

It is vital for our society to stimulate consumption. A flood of publicity shows us the goods we would have to do without if we meant to change our life-styles (Group 11, Lucerne).

You cannot change things unless you begin in your daily life. As has been said already, you should become active at all levels, and I think, ultimately daily life has to change if the whole is to be changed. This is certainly a key argument: people are obviously not prepared – or are too little prepared – to change their private lives (Group 6, Sissach).

##### 4.2. *The tragedy-of-the-commons interpretation*

The quotations that follow reflect Kempton’s findings, as well as those reported by Wortmann et al. (1993), and Schahn (1993), namely that the cost to individual freedom to choose and to be happy in an economy of beneficence are too great to contemplate for an uncertain climate future. One way of coping with this is to believe

in the insignificance of individual action to change the order of things. Another is to look to others to adopt the same unwillingness to act. It is tempting to blame the collective tardiness in adopting climate change mitigating behaviour as something through which all people reluctantly share. One noticeable feature of this response is to emphasise the relative insignificance of the behaviour that has to be changed.

##### **Denial of responsibility and powerlessness**

And additionally, I find it an interesting observation that we rather quickly conclude: I alone can do nothing, I can achieve something only if the others join (Group 8, Liestal).

##### *A dialogue*

Hanna: There are relatively few actual possibilities to practically do something if you feel concerned. They can’t tell you that much what really we should do. To consider not turning on your stereo set on account of its energy consumption seems a bit ridiculous. There must be so many possibilities at other levels. Somehow you find yourself in a vacuum.

Lena: Helpless.

Balthasar: You have to gather so much information. But sometimes I find that we are already almost hypersensitive to those things. Actually, nothing should be manufactured any more that is so environmentally harmful. I am convinced that theoretically this is realizable. Just the means are not yet available. Or it’s the wrong people that have them at their disposal (Group 16, Engelberg).

As long as the USA don’t do anything ... You can’t force things. And yet someone has to start. Not necessarily with an extreme step, (...) but a model is needed in the context of which other countries might start as well. (...) You cannot expect all countries to start simultaneously. Even if you look at international law: you can’t force anybody to respect the rules. (...) I am a bit disappointed that countries carrying so much responsibility lag so far behind and don’t even understand it. If only those countries with their enormous populations concerned could make this clear ... (Group 11, Lucerne).

##### **After the flood: personal freedom to choose**

##### *A dialogue*

Fabian: Standing in the way of ecological measures are lacking insight, individualism and egoism.

Renaldo: Yes. Individualism, personal freedom, which in our society is one of the highest goods. Or is seen as one of the highest goods. Free way for free citizens (Group 12, Lucerne).

##### **After the flood: ignorance and powerlessness**

##### *A dialogue*

Change is difficult since we are so accustomed to things as they are, to consumption, to food and drink.

You don't think any more about what you do to nature.  
Gerda: We just consume.

Jean: Yes, we just consume. Ok, this object is cool – actually it is toxic when burned, but we don't care anyway, as we don't exactly know what effects we cause. Information is rather vague, and so you don't really know, I don't really know, we are somehow helpless. If we took every problem equally seriously, we would become permanently depressed (Group 4, Zurich).

#### **After the flood: rejection of blame**

The cause is the human being as such. His or her needs, generated by some publicity or his or her personal environment (Group 12, Lucerne).

The mobility mania is just a symptom, the cause is our society. Our society orients by a certain rationale, e.g. by certain ideals of beauty, by ideals about how to spend vacations, what to do to be 'in', what mountain bike to ride. I think, the cause could perhaps be found at school, in education (Group 12, Lucerne).

#### *4.3. The managerial-fix interpretation*

The faith in some form of managerial fix is always a comfortable zone for denial. This is usually found in the more technocentrically orientated citizens. But from the evidence of these IA focus groups, this perspective was widespread, both as a hope and as an expectation. We also note Kempton's findings, namely that recourse to "fix" often involves muddled perceptions of cause and effect associated with cultural models.

#### **The belief in technological solutions**

Horst: I do not see this only because of energy use. After all, we are also talking about how to maintain the strength of our economic location. We said before that all that energy saving technology is rather expensive for the moment. If we take the lead there, then we can save our own jobs. And globally. That would be enough of a reason to stick to this road. For the great Sulzer (Swiss manufacturing firm) turbines, eventually the market will dry up. But sophisticated solar technology, there the market does not dry up for a long time, (Group 17, Engelberg).

Max: He had quite a good idea. Now, if energy saving devices became trendy. Or if energy saving itself became trendy. If electric cars or the Smart car became trendy. (Group 17, Engelberg).

#### **Metaphor of displaced commitment**

I am content with the option to buy only one detergent. I don't need fifty different products in supply. But then I require this one detergent to be produced by these intelligent people, the chemists etc., in a way that I'm not additionally forced to use it as minimally as possible so as not to stress the environment. This should be the task of

them up there and I should be able to rely on them (Group 8, Liestal).

It is interesting to contrast the image of a managerial fix with an image of learning in a civic society.

#### **The belief in personal contribution**

If people felt closer to each other, if they treated each other in a different way ... This would be advantageous for nature as well (Group 8, Liestal).

Each individual is not prepared to do without certain conveniences. So all individuals together do not succeed in creating political pressure (...) In our political system, substantial changes are realised through the ballot box. But this will be of no use as long as not everybody becomes active and recognises certain problems, thus being prepared to support political action. It is very unlikely that today a majority would vote in favour of a bill for a continuous increase in energy prices. If everybody understands and personally begins to change things, a political majority becomes realisable. Such is our system (Horst, Group 17, Engelberg).

Christa: Basically, I find this quite a good way of proceeding. To say, everything takes its time, nothing happens from today to tomorrow. To say, one tries for 10 or 15 years on a voluntary basis, and if it doesn't work, then there will be a law. (Group 16, Engelberg).

#### *4.4. The governance-distrust interpretation*

There is a growing literature on the deep distrust of government as a reliable locus for pursuing the public interest. For example, in an analysis of 14 democracies, Putnam et al. (2000) looked at responses to questions along the lines: "do you feel that politicians can be trusted?" "Do you think your political representatives really care about people like you?" In all but three of the countries studied loss of trust and lack of confidence in the democratic process were very marked. For example, only 11% of Americans have faith in their legislatures, while in Europe, the trust rating for parliaments ranges from 20 to 40%, a halving over the last 10 years.

In this study, Swiss citizens were generally more supportive of their government. But the excuse to believe that individual behaviour change will not be matched by a reliable governmental response, and even less through leadership, was still very evident. Either the government was regarded as not being able to deliver, or it was perceived that various lobbies would interfere with any substantial strategy for climate change mitigation. Furthermore, there was a suspicion that governance would use environmental or carbon levies as an excuse to raise taxes for unrelated political promises.

To say it in short, you can't do that much as long as the economy continues to be so powerful. As long as economic interests are still so predominant. Before being able to effectively face environmental problems you



would hence have to ecologize the economy first (Group 2, Zurich).

And still we are of the opinion that a number of things go wrong economically and politically. The present situation reflects lobbying. Our whole consumption pattern may be influenced by these structures (Darius, Group 11, Lucerne).

Agnes: I find it strange to discuss this problem, because money makes the world go round and industries are the big issue, not families, (Agnes, Group 1, Zurich).

#### *Dialogue*

I agree that the situation reflects the existence of so many lobbies. If you discuss or formulate any bill, it will be demolished by that great number of stakeholder associations. Eventually, only 20 per cent of your originally planned effect will be realized.

Elvira: You can influence too little, this I find clear. Just look at the global climate conferences. If those people there really became active on the basis of all that expert knowledge, things would have to change (Group 5, Sissach).

### **Rejection of unwanted policy measures**

Manfred: The question simply is, do people want to go in such a direction? They know, if they say yes here, it will cost again later on, (Group 17, Engelberg).

#### *A dialogue*

Fabian: I don't think that this would be accepted, higher gasoline prices.

Klaus: Increasing gasoline prices by one Swiss Franc.

Fabian: That would not be accepted. 50 cents would already be difficult.

Nadja (facilitator): So, you feel, price increases would not be the right way?

Fabian: It's a question of measure. One sees it in Germany, that's what the Greens said in the election campaign, that gasoline should cost 5 Francs, to protect the environment. Now they have the greatest troubles to reach the 5 per cent of the vote, to stay in parliament at all. So that's what it leads to. Put up such exaggerated things and then expect to get elected, (Group 12, Lucerne).

### **5. Implications for policy and for future research**

The denials described above are therapeutic strategies to deal with the pain involved in dissonance. They are not easily set aside unless the perception of gains and losses is substantially reversed. The tragedy-of-the-commons outlook also creates a powerful sense of awaiting others to act first before individual sacrifices are regarded as worthwhile. Alternatively, the danger of feeling inconsequential rises to the surface of the mind when matters of comfort or self-identity are apparently threatened, or at least challenged.

The findings from this study reveal both a coherence and a rationality to dissonance and denial that will not make it easy for democracies to gain early consent for tough climate change mitigation measures. Indeed, this analysis suggests a level of sophistication and cohesion in socio-psychological reactions that will prove difficult to alter, unless very wide-ranging policy responses are integrated over a prolonged period of time.

So what do we learn from this research as to how to move forward? A six-point co-ordinated approach may pay dividends.

1. The application of socio-psychological theories provide a rich interpretation as to why attitudes do not readily fit with behaviour. Further research extending these theories by building on the procedures reported on in this paper, using a wider array of participants, and taking place in other political cultures, should reveal more fundamentally the nature of the barriers to citizen action. The results of these studies need to be carefully translated into appropriate policy action through dialogue with policy-makers and decision-takers. In this way a blend of socio-psychological and political perspectives may provide the most relevant theoretical and policy framework.
2. There are various powerful tools now available to help citizens visualise the consequences of their prolonged misplaced actions. For example, it is now possible to show realistically to citizens the implications of climate change impacts on vulnerable societies and ecosystems. It is also possible to indicate how the particular character of democracies may become more sensitive to accommodate to climate change. For example these democracies could become more participatory, more consensus driven, and more proactive in pursuing and maintaining initially contested policy measures. Other tools include integrated assessment models tied to collages of the kind introduced in this study. A further technique is to encourage citizens to "tell stories" through which they can caringly address their dissonances and denials. Yet another approach is the application of sensitive intuitive interviewing of community leaders so that they can work considerably through their own social networks to enable their communities to address these underlying contradictions.
3. There is a huge potential to combine integrated assessments and interactive story telling in schools, community forums, and even possibly in petrol stations,<sup>3</sup>

<sup>3</sup> There is no reason why the petrol station should not become a location for awareness raising over climate change mitigation behaviour, a learning space where car drivers can play on interactive models of transport-related climate matters before filling up. In this sense the petrol station could become a joint venture between socially responsible oil and vehicle businesses, local education authorities, and local governments with local pools of revenue to spend on various transport options.

to enable people sensitively to create a more civic minded approach to their responsibilities in dealing with climate futures. In this way feelings of a new social identity and more accomodative lifestyles may begin to appear. This could form the basis for more general social acceptance of the pricing and regulatory policies necessary to meet the objective of tolerable climate change.

4. Appropriate technology can be developed through supportive patterns of regulatory regimes and price incentives. The income from such incentives could also be channelled into local sustainability charities. These pools of money would then be at the disposal of local citizens groups to act out their climate mitigation responsibilities. Such charities will only work effectively if there is a sympathetic social identity within community groups. Hence, the significance of the methodologies suggested above.
5. Maybe it is not too fanciful to see the emergence of a more participatory and ethically centered citizenry emerging from this combination of influences. This can and should begin in the classroom. But also it must generate in the home and in all places where communities meet. Through such measures, maybe it is possible to imagine a “whole” citizen learning to create a tolerable climate future for the globe out of the gradual dissipation of dissonance and denial.
6. Governments have to appear united, credible, and persuasive over the issue of climate change and associated mitigation and adaptation measures. Citizens need political cues and clear leadership from their elected representatives, that are consistent, purposive, and progressive. This ought to be the prime output from the 6th Conference of the Parties to the UN Framework Convention on Climate Change. We are not sanguine that this will be so, and accordingly we could conclude that the delay in meaningful citizen action will be prolonged. However, if some, or all, of the proposals suggested above are encouraged and become widespread, there is a chance that citizens could still lead their governments. Along with more socially minded business, and supportive non-governmental organisations, such a “new democracy” could create a realm of effective climate management for a sustainable millennium.

## 6. Uncited Reference

Eiser, 1994; Langford et al., 1999; Owen 1999; Puttnam et al., 2000.

## References

- Bostrom, A., Morgan, M.G., Fishoff, B., Read, D., 1994. What do people know about climate change? Part 1: mental models. *Risk Analysis* 14 (6), 954–970.
- Dürrenberger, G., Behringer, J., Dahinden, U., Gerger, A., Kasemir, B., Querol, C., Schüle, R., Tabara, D., Toth, F., Van Asselt, M., Vassilarou, D., Willi, N., Jaeger, C.C., 1997. Focus Groups in Integrated Assessment: A Manual for a Participatory Tool. Ulysses Working Paper 97-2, Darmstadt University of Technology, Germany.
- Eiser, R., 1994. *Attitudes, Chaos and the Connectionist Mind*. Blackwell, Oxford.
- Festinger, L., 1957. *A Theory Of Cognitive Dissonance*. Stanford University Press, Stanford, CA.
- Gardener, G.T., Stern, P.C., 1996. *Environmental Problems And Human Behavior*. Allyn and Bacon, Needham Heights.
- Hardin, G., 1968. The tragedy of the commons. *Science* 162, 1243–1248.
- Heider, F., 1946. Attitudes and cognitive organisation. *Journal of Psychology* 21, 107–112.
- Hillmann, K.-H., 1989. *Wertewandel: Zur Frage soziokultureller Voraussetzungen alternativer Lebensformen*. Wissenschaftliche Buchgesellschaft, Darmstadt.
- Jaeger, C., Kasemir, B., Stoll, S., Schibli, D., Dahinden, U., 2000. Climate change and the voice of the public. *Environmental Modeling and Assessment*, submitted for publication.
- Kasemir, B. et al., 1999. *Ulysses, Urban Lifestyles, Sustainability and Integrated Environmental Assessment: Final Report*. Darmstadt University of Technology, Germany.
- Kasemir, B., Schibli, D., Stoll, S., Jaeger, C., 2000. Involving the public in climate and energy decisions. *Environment* 42 (3), 32–42.
- Katz, D., 1960. The functional approach to the measurement of attitudes. *Public Opinion Quarterly* 24, 163–204.
- Kempton, W., Boster, J.S., Hartley, J.A., 1995. *Environmental Values in American Culture*. MIT Press, Boston.
- Kempton, W., 1997. How the public views climate change. *Environment* 39 (3), 12–21.
- Langford, I., Marris, C., McDonald, A.-L., Goldstein, H., Rasbash, T., O’Riordan, T., 1999. Analysis of individual and aggregate responses in psychometric data using multi level modelling. *Risk Analysis* 19 (4), 635–684.
- Lantermann, E.-D., Döring-Seipel, E., 1990. Umwelt und Werte. In: Kruse, L., Graumann, C.-F.; Lantermann, E.-D. (Eds.), *Ökologische Psychologie. Ein Handbuch in Schlüsselbegriffen*. Munich, Weinheim, Psychologie Verlags Union, pp. 632–639.
- Lorenzoni, I., Jordan, A., Hulme, M., O’Riordan, T., Turner, K., 2000. Co-evolutionary approach to climate change impact assessment: a scenario-based study in the UK. *Global Environmental Change*, (6), in press.
- McGuire, W.J., 1969. The nature of attitudes and attitude change. In: Lindzey, G., Aronson, E. (Eds.), *Handbook of Social Psychology*, 3rd Edition. New York, Random House.
- Merton, R.K., 1987. The focussed interview and focus groups: continuities and dis-continuities. *Public-Opinion-Quarterly* 51 (4), 550–566.
- Morgan, D.L., Krueger, R.A., 1998. *Focus Group Kit*, Vol. 1–6. Sage, London.
- Ophuls, W., 1977. *Ecology and the Politics of Scarcity*. Freeman, San Francisco.
- Owen, G., 1999. *Public Purpose and Private Benefit: The Politics of Energy Conservation*. Manchester University Press, Manchester.
- Pennigton, D.C., Gillen, K., Hill, P., 1999. *Social Psychology*. Oxford University Press, London.
- Puttnam, R., Phatt, S., Dalton, R., 2000. *What is Troubling the Major Democracies?*. Princeton University Press, Princeton, NJ.
- Read, D., Bostion, A., Morgan, M.G., Fishoff, B., Smuts, T., 1994. What do people know about climate change? Part 2: survey studies of educated lay people. *Risk Analysis* 14, 971–982.
- Schahn, J., 1993. Die Rolle von Entschuldigungen und Rechtfertigungen für umweltschädigendes Verhalten. In: Schahn, J., Giesinger, T. (Eds.), *Psychologie für den Umweltschutz*. Weinheim, Beltz, pp. 51–61.
- Skolnikoff, E.B., 1999. The role of science in policy: the climate change debate in the US. *Environment* 41 (5), 16–20, 42–45.

- Tampe-Oloff, M., 1986. Hindernisse einer problemorientierten Reaktion auf das Waldsterben im individuellen und politischen Bereich. In: Günther, R., Winter, G. (Eds.), *Umweltbewusstsein und persönliches Handeln. Der Bürger im Spannungsfeld zwischen Administration, Expertentum und sozialer Verantwortung*. Weinheim, Beltz, pp. 127–135.
- Taylor, S.E., Fiske, S.T., 1981. Getting inside the head: methodologies for process analysis in attribution and social cognition. In: Harvey, J.A., Ickes, W.J., Kidd, R.F. (Eds.), *New Directions in Attribution Research*, Vol. 3. Hillsdale, NJ, Erlbaum, pp. 459–524.
- Thompson, M., Rayner, S., 1998. Cultural discourses. In: Rayner, S., Malone, E. (Eds.), *Climate Change and Human Choice*. Batelle Press, Columbus, OH, pp. 265–343.
- Wortmann, K., Stahlberg, D., Frey, D., 1993. Energiesparen. In: Schahn, J., Giesinger, T. (Eds.), *Psychologie für den Umweltschutz*. Weinheim, Beltz, pp. 77–101.

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