Future Forests | Working Report

Values, attitudes, and norms

Drivers in the Future Forests context

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Aug, 2009

Annika Nordlund (2009). *Values, attitudes, and norms. Drivers in the Future Forests context.* External drivers affecting Swedish forests and forestry. Future Forests Working Report

Acknowledgement: The research was funded through Future Forests, a multi-disciplinary research program supported by Mistra (the Foundation for Strategic Environmental Research), the Swedish Forestry Industry, the Swedish University of Agricultural Sciences, Umeå University, and the Forestry Research Institute of Sweden.

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This working report is one in a series of ten reports which focus on external drivers that have a potential of affecting the Swedish social-ecological forest systems in the future. The drivers were chosen after discussions in Future Forests' Core Team of researchers and in Future Forests' Panel of Practitioners. The reports are essential inputs to the research program's scenario analysis of possible futures for the Swedish social-ecological forest systems. Other reports on *External drivers affecting Swedish forests and forestry* are:

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Future Forests analyzes conflicting demands on forests systems
to enable sustainable strategies under uncertainty and risk

Content

1. Introduction

Values, Attitudes, and Norms

The human-environment relation is a complex one, in which behavior is a function of the person and its environment. There is even more complexity to deal with if one tries to define more specifically what factors in the person and environment that influence behavior. Stern (2000) distinguished between four different types of determinants influencing environmentally significant behaviors, which he termed: *Attitudinal factors, Contextual Factors, Personal Capabilities, and Habits or Routines*. This paper concentrates on the attitudinal factors, which comprise of values, environmental attitudes and beliefs, and personal norms.

Defining Values

Values, or primitive beliefs, have traditionally been regarded as core aspects of the self-concept (Rokeach, 1968; Sherif & Cantril, 1947), and as such a form of 'basic truths' about the reality. Many researchers have not made a conceptual distinction between values and attitudes, yet some have recognized the importance of understanding the relations that exist between evaluation of the more abstract and the more concrete (e.g., Eagly & Chaiken, 1993).

An approach often used when studying the effects of values on proenvironmental behavior is found in *Value Theory*. According to Schwartz (1994), values transcendence situations, vary in importance, and function as guiding principles in life. One common measure of values is Schwartz's (1992, 1994) *Value Inventory Scale*, which assesses ten distinct value types representing underlying motivational structures. These value types can be described by two dimensions; *openness to change vs. conservation* and *self-transcendence vs. self-enhancement*. Openness to change vs. conservation reflects the distinction between individual's willingness to act independently and their unwillingness to change, while self-transcendence vs. self-enhancement reflects the distinction between values oriented toward the pursuit of self-interest and values oriented toward the welfare of others. Self-transcendence serves collective interests, combining value types such as universalism and benevolence. Self-enhancement serves individual interests, combining value types such as power and achievement. Examples of individual values are success and pleasure and examples of collective values are loyalty, equality, and social justice (Schwartz & Bilsky, 1987, 1990). Several studies have shown that people who give priority to self-transcendent values show a higher willingness to engage in different forms of altruistic, cooperative, or proenvironmental behavior, than people who give priority to self-enhancement values (Karp, 1996; Schwartz, 1992, 1994; Stern, Dietz, & Guagnano, 1998; Stern, Dietz, & Black, 1985-86; Stern & Dietz, 1994; Stern, Dietz, Kalof, et al., 1995).

Value orientation can also be more specific in character. An example is values related to the environment. Environmental values have been categorized in similar ways by several researchers, for instance, shallow vs. deep ecology (Naess & Rothenberg, 1989), homocentric, ecocentric and egocentric values (Merchant, 1992), social-altruistic, biospheric, and egoistic values (Stern, Dietz & Guagnano, 1995; Stern, Dietz, and Kalof, 1993; Stern & Dietz, 1994), and *anthropocentric* vs. *ecocentric* values (Eckersley, 1992; Grendstad & Wollebaek, 1998; Thompson & Barton, 1994). The term anthropocentric was introduced in the late 19th century representing the idea that humans are the most important life form and other life forms are important only in relation to their positive or negative influences on humans (Campbell, 1983). With this definition of anthropocentrism, it would be wrong to cut down the rain forest because it contains potential cures for human diseases (Kortenkamp & Moore, 2001). Ecocentrism is related to biocentrism and was introduced in the early 20th century. It represents the idea that the universe is the originator of life and that nature

possesses intrinsic value, aside from its usefulness to humans (Campbell, 1983). Rokeach (1973) contended that values are causally related to attitudes, but that while attitudes focus on specific objects or situations, values represent abstract ideals. There is today support for a three-way distinction of values - egoistic, altruistic, and biospheric value orientation - and that these are useful for examining environmentally relevant behaviours of different kind (De Groot & Steg, 2007).

Defining Attitudes

In contemporary research, the most common definition of the attitude concept is as an internal psychological tendency, which is expressed by the evaluation of some entity with some degree of favor or disfavor (Eagly & Chaiken, 1993; 1998). An attitude does not exist until the individual responds evaluative towards an entity with affect, cognition, or behavior. Attitudes thus develop as a result of evaluative responding (e.g. approval or disapproval, favor or disfavor, liking or disliking, approach or avoidance, attraction or aversion), which produces a psychological tendency to respond with a particular degree of evaluation when encountering the attitude object. An attitude object is the entity evaluated, and can be anything that becomes an object of thought. If this tendency to respond is established the person has formed an attitude toward the object.

Attitude-revealing evaluations are divided into three major classes of responses: cognition, affect, and behavior (Katz & Stotland, 1959; Rosenberg & Hovland, 1960), which are referred to as *the three components of attitudes*. Cognitive responses refer to thoughts or ideas (beliefs) that people have about the attitude object. These are associations established between an attitude object and various attributes (Fishbein & Ajzen, 1975). Affective responses are feelings, moods, emotions, and sympathetic nervous system activity that people experience in relation to the attitude object. Behavioral responses are people's actions, or intentions to act, with respect to the attitude object (Eagly & Chaiken, 1993). Attitudes are further said to be formed through gained information leading to beliefs (cognitive process), emotional experiences (affective process), and derived from past behavior (behavioral process) (Eagly & Chaiken, 1993; Eagly & Chaiken, 1998).

Attitudes have different functions, each presuming that certain general needs or motives boost and direct attitudinal functioning (Katz, 1960; Katz & Stotland, 1959). In the literature, at least four different functions have been identified. Attitudes have a knowledge function, which resembles the schema concept, i.e. schemas as required to make sense out of experiences. Attitudes further enable a person to maximize rewards and to minimize punishments, which is inherent in an adjustment or utilitarian function. Attitudes also have an ego-defensive function, in that people are able to protect themselves from unpleasant realities. Attitudes finally enable people to express their personal values and self-concept, i.e. attitudes have a value-expressive function. Attitudes therefore enable individuals to adapt to their environment and the relation between attitudes and behavior is argued to be best understood by placing attitudes in the context of other psychological factors, such as values, and norms, which determine behavior (Eagly & Chaiken, 1993). Researchers have stressed the importance to assess the full range of variables that motivate toward a certain behavior (De Young, 2000; Stern, 2000; Zelezny & Schultz, 2000). An activated attitude would not necessarily affect a seemingly relevant behavior, if the individual does not perceive it as relevant (Snyder, 1982). Attitudes therefore must be seen as relevant and appropriate guides to the behavioral choices that an individual face in order for activated attitudes to affect behavior.

Beliefs

Classic beliefs-attitude models state that beliefs are important in attitude theory. People have beliefs about attitude objects and these beliefs are viewed as the basic building blocks of attitudes. Fishbein developed the expectancy-value model during the 1960s (1961, 1963, 1967) and attitudes were, according to Fishbein, a function of beliefs about the attitude object. People thus, formed

attitudes by learning what the characteristics of attitude objects were. The expected value has an expectancy component and a value component. The expectancy component is the subjective probability that the attitude object is characterized by the attribute and the value component is the evaluation of the attribute. To predict an attitude, the expectancy and value terms, associated with each attribute, are multiplied and these products added. The first published presentation of an expectancy-value theory of attitudes was made by Peak in 1955. Attitudes was assumed to be a function of the subjective probability that the attitude object leads to good or bad consequences (instrumentality) and the evaluation of these consequences (satisfaction).

The New Environmental Paradigm (NEP; Dunlap & Van Liere, 1978) is a widely used scale that assesses beliefs about the human ability to upset the balance of nature, the existence of limits to growth for human society, and the human right to rule over the rest of the world. The NEP items are so called primitive beliefs about the nature of the earth and the human relationship with it. The NEP has been successful in predicting behavioral intentions and behavior. The scale assesses three facets, balance of nature, limits to growth, and humankind's domination of nature. The NEP items are so called primitive beliefs about the nature of the earth and the human relationship with it. A revised version of the scale, the New Ecological Paradigm Scale, has been developed. This new revised measure of an ecological worldview has been shown to be related to proenvironmental behavior (Dunlap, Van Liere, Mertig, & Jones, 2000).

Defining Norms

There is much research done on the influence that so called social norm have on our behavior, and it refers to the influence important others have on us, such as family, friends, and other people, whose opinion we value as important. The social or subjective norm thus captures the perception of what important others expect the individual to do. Another norm of importance is the perceived moral obligation, which represents personal beliefs about what is right and wrong; in essence a personal norm (Schwartz & Tessler, 1972). It is thus possible to form a moral conviction that does not comply with important others (Manstead, 2000). What is perceived to be wrong may be followed by an intention that conflicts with the perceived personal moral obligation, that is, the personal norm, which means that a moral dilemma is present indicating that the effect of personal norms and subjective norms differ (Kerr, 1995). Kerr (1995) argued that this difference could be conceptualized in terms of the consequences of breaking the norm. Breaking a social norm leads to punishment from surrounding people, breaking a personal norm, on the other hand, leads to punishment from the individual self in the form of a bad conscience. The moral norm is therefore said to play the role of anticipated feelings in decision-making: that is negative feelings as a result of breaking these personal norms, and positive feelings as a result of behaving in accordance with these personal norms.

Personal or moral norms are believed to originate in social norms or group norms, but they have become internalized, and as such influences individual thoughts, feelings, and behavior independently from the social context (Manstead, 2000). Stern et al. (1995) emphasized both general values and internalized moral norms in the process of deriving attitudes on specific issues.

Values, Attitudes, and Norms – Forces behind Intentions and Behavior

In this paper, attitudinal factors are defined according to the *inter-attitudinal structure of attitudes* (Eagly & Chaiken, 1993). Attitudes are seen as linked with other attitudes in a hierarchical manner in which more particular attitudes or beliefs are developed that are consistent with the individual's values in order for the individual to express and act on those values. Values were defined as core elements that are linked to attitudes and beliefs as well as to other values. The norm concept

focused upon was the concept of the personal norm, which is the perceived moral obligation related to proenvironmental behavior, resulting in negative feelings when broken.

The most investigated aspect of inter-attitudinal structure of environmental attitudes is the relation between these attitudes and values (Eagly & Kulesa, 1997). An example of this is the work of Stern, et al. (1995) that focused on the hierarchical inter-attitudinal structure of environmental attitudes. People tend to fall back on their values to develop a position when faced with a specific environmental dilemma. What this means in terms of the concepts of attitude research, is that when environmental attitudes are deduced from values, they are in fact generalized from more abstract attitudes. Addressing these core values in the process of changing attitudes has been established as important in research on environmental issues (Eagly & Kulesa, 1997). However, people differ with respect to what values they use to justify their attitudes (Kristiansen & Zanna, 1988). Respondents with negative and positive attitudes differed in the values they regarded as relevant to different attitude issues. The complexity of people's beliefs about social issues reflects the linkage of these issues to their underlying values. Thus, people tend to think about an issue in an integrative complex fashion to the extent that it activates values with conflicting implications for their attitude on the issue (Tetlock, 1986; 1989). Important attitudes are more extensively linked to other components of the cognitive structure, such as values and the self-concept (Eagly & Chaiken, 1993). Stern, Dietz, Kalof, and Guagnano (1995) have, for example, showed that people derive their attitudes on specific environmental issues from their general values and internalized moral norms. Attitudes are often embedded in a complex network of relations between attitudes, beliefs, and values in which strongly held values are core, or central, elements in the sense that they are linked to many attitudes and beliefs as well as to other values (Feather, 1996). Most attitude-attitude linkages have featured the anchoring of attitude to values. This emphasis implies that attitudes that are linked to more abstract attitudes (values) in a hierarchical structure may be particularly strong (Eagly & Kulesa, 1997; Eagly & Chaiken, 1998). An important stream of research is that of cognitive dissonance (Festinger, 1957). According to cognitive dissonance theory, individuals seek consistency among their cognitions (i.e. beliefs, opinions), and when there is an inconsistency between attitudes or behaviors (dissonance), something must change to eliminate the dissonance. There are commonly three ways to eliminate dissonance; to reduce the importance of the dissonant beliefs, to add more consonant beliefs that outweigh the dissonant beliefs, or to change the dissonant beliefs so that they are no longer inconsistent. The greatest dissonance is created when the two alternatives are equally attractive.

Causal models of the attitude-behavior relation explore the psychological processes that intervene between the activation of an attitude and a behavioral response to the attitude object. Eagly & Chaiken's (1993) composite model places attitudes within a network of other psychological variables that are relevant to behavior, such as the behavior itself, intention to behave, attitude toward the behavior, habit, and attitude toward the target of the behavior. The attitude toward the behavior determinates the anticipated outcome of the behavior, which is the utilitarian outcomes, the normative outcomes, and self-identity outcomes. There are also several models that have been extensively tested empirically. One such model is the *Theory of Reasoned Action* (Ajzen & Fishbein, 1980; Fishbein, 1980; Fishbein, & Ajzen, 1975). This is an expectancy-value model, in which behavior is not seen as caused by the attitude directly but by an intention to engage in a behavior. The model is a statement of individual rationality, or 'reasoned action', defined in terms of behavior's consequences. The perceived consequences of behavior are divided into two classes: utilitarian consequences (underlies attitude toward the behavior) and normative consequences (underlies subjective norm). The emphasis on the perceived consequences of behavior led it to be criticized for its presumed assumption that people necessarily should engage in elaborate cognition about consequences prior to action (Fazio, 1986; McGuire, 1985). Ajzen & Fishbein's (1980) view was however, merely that people at some time formed their attitudes toward behaviors, by thinking about the consequences of their behaviors. Once such an attitude is formed, people need not review these consequences before each behavioral opportunity. Ajzen (1985, 1987, 1988, 1991) developed the *Theory of Planned Behavior*, TPB (see Figure 1), building on the Theory of

Reasoned Action, to account for behaviors that are not under total volitional control. The model states that the extent to which one's intentions to perform behaviors can be carried out depends in part on the amount of control one has over the behavior, or the perceived behavioral control. Perceived behavioral control is in turn determined by control beliefs and has both an effect on the intention to perform the behavior and on the behavior directly.

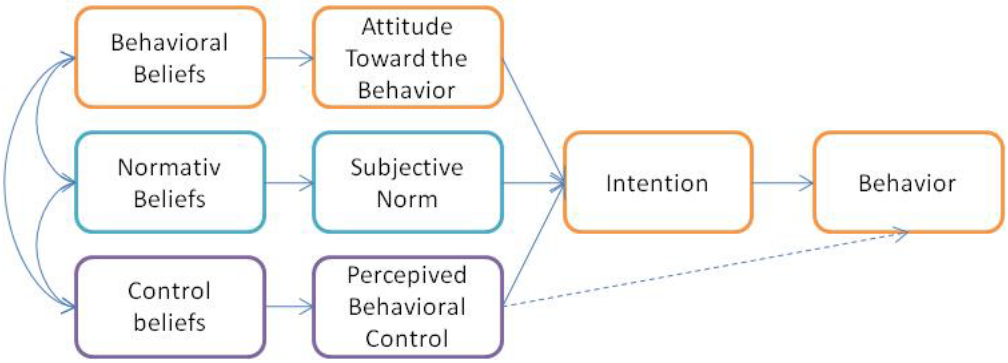

Figure 1. Ajzen´s Theory of Planned Behavior (TPB, 1991).

A theory focused on internal sources of altruistic behavior is the *norm-activation theory* developed by Schwartz (1977). Altruistic behavior is argued to exist to the extent that it was motivated by self-expectations. Schwartz has defined this self-expectation as *personal norm*. Personal norms represent the individual's internal standard or ideal for behaviors. The basis of the norm-activation is the desire to behave in accordance with held values. The personal norm, experienced as feelings of moral obligation, is generated from an internalized structure of values and a perceived need of others. According to Schwartz's norm-activation theory, awareness of the need of others was important (Schwartz, 1977). A perceived need of others leads to norm-activation, and this activated norm guides toward appropriate behavioral responses in the given situation.

Norm-activation theory and value theory have been integrated and extended to proenvironmental behavior. Several studies of proenvironmental behavior have supported Schwartz's norm-activation theory (Black, Stern, & Elworth, 1985; Blamey, 1998, Guagnano, Stern, & Dietz, 1995; Widegren, 1998) and Stern's *value-belief-norm theory* of proenvironmental behavior is one such model (Stern, 2000, see Figure 2). Values, such as egoistic, altruistic, or biospheric values (Stern et al., 1993), awareness of consequences, or problem awareness (Newhouse, 1990; Grob, 1995; Stern, 2000; Stern et al., 1985-86), and personal norm (Stern, 2000) have been shown to influence proenvironmental behavior. A relation between values and awareness of environmental consequences has been found in several studies (Stern & Dietz, 1994; Stern et al., 1995; Stern, Dietz, Kalof, et al., 1995). Perceiving environmental problems as more or less severe or threatening depend on the value structure. Values were argued to function as the frame from within which available information about the state of the environment is interpreted, or as amplifiers of such information (Stern & Dietz, 1994; Stern et al., 1995; Stern, Dietz, Kalof, et al., 1995). The amplifying function of values depends on whether the values are individually or collectively oriented. The activated personal norm is therefore a mediator between problem awareness and behavior (Schwartz, 1977).

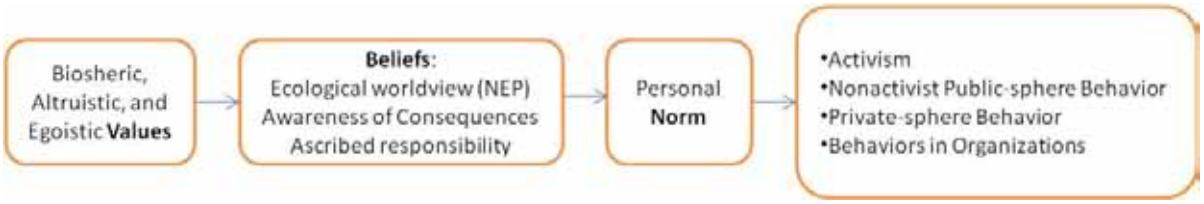

Figure 2. Schematic model of variables in Stern´s Value-Belief-Norm theory (Stern, 2000)

The relation between attitudes and behavior is thus best understood by placing attitudes in the context of other psychological factors, such as values, habit, and norms, which determine behavior (Eagly & Chaiken, 1993). Some early empirical work however resulted in weak attitude-behavior correlations (LaPiere, 1934, Wicker, 1969). It is known from research on attitudes that if the issue is to predict behavior, appropriate levels of specificity of measures are important (Eagly & Chaiken, 1993). Attitudes toward behaviors are particularly effective in predicting single-act behavior. Attitudes toward targets, on the other hand, show rather weak relations when used as predictors of single behaviors, since a single behavior is typically influenced by a variety of factors in addition to an attitude toward a target. Attitudes toward targets, instead, successfully predict multiple-act criteria (Fishbein & Ajzen, 1974). Any single behavior, or any broader or narrower set of behaviors, can thus be predicted from an attitude if this attitude is appropriately formulated in relation to the behavioral criterion. This matching principle, known as the *Principle of Compatibility*, specifies that both attitudes and behavior should be defined at an equivalent level of specificity or generality. Fishbein and Ajzen (1974) maintained that relations between attitudes and behaviors are maximally strong to the extent that actions, target, context, and time elements are assessed at the same level of specificity. Relatively high attitude-behavior correlations can be obtained by relating a general attitude (e.g., toward environmental preservation) to a reliable behavioral index that is an aggregation of attitude-relevant behaviors. However, Dawes and Smith (1985 p.560) argued that this might reduce interest in relations of this sort, in stating, “The reductio ad adsurdum occurs when the attitude question targets the behaviors of interest with such specificity that the response to the former is tantamount to a behavioral intention concerning the latter”.

2. Values, Attitudes, and Norms in The Context of (Sweden's) Forests

Humans are often said to either be a part of nature of separate from nature (Schroeder, 2007). Being a part of nature can be interpreted as feeling comfortable in nature, and that human elements are not allowed to dominate nature "to the extent of ruining it" (Schroeder, 2007, p. 295). Being separate from nature on the other hand can be interpreted as feeling alienated in a natural environment. Being "part" or "apart from" nature is related to people's actual experiences of the natural and human aspects of places. Attitudes to the forest and the nature are created early in life, and in recent decades, we see a trend toward greater environmental concern in general population samples (Dunlap and Van Liere 1978; Dunlap et al. 2000). The links between values, attitudes, and behavior has been empirically shown in a number of studies relating to natural resource management (Manning, Valliere, & Minteer, 1999; Schultz & Zelezny 1999, Schwartz, 1994, Stern & Dietz, 1994, Stern, Dietz, & Guagnano, 1995, Vaske & Donnelly, 1999).

Natural settings have been the focus of much research in environmental psychology (Sundstrom, Bell, Busby, & Asmus, 1996). Nature experiences are highly valued in Sweden, and as such seen as an important part of children's developmental process. In Sweden then, children often get their first experience with nature when in kindergarten, in which the forest function as a teaching tool, in which no parents are present and the children are able to create their own relation to the forest. For adults the forest may be seen as an important mental resource in which one can decrease the levels of stress and receive peace and quiet (Rydberg, 2001). The forest thus has multiple roles to play in society and plays a part in our creation of historical, social and cultural identity (Rydberg, 2001). Sweden has a long history of forestry, and forest research on values has foremost been focused on how attitudes have been formed and expressed in economic terms (Thunberg, 2006). In the following section we will review some of these studies. Research projects focusing on how people's values and attitudes relate to the forest scenario are present. However, the use of the concepts of values and attitudes are very diverse.

When one talks of values within the forest research, some distinctions must be made. The psychological definition described in section 1.1.1, is not readily found in the forest research. There is research conducted on environmental values, some being on forest values or the spiritual values related to the forest landscape (e.g., Kellert 1996; Kempton, Boster and Hartley 1995; Lewis & Sheppard, 2005, Merchant 1992; and Stern, Dietz and Kalof 1993). Baron and Leshner (2000), speaks of protected values, thought of as protected from tradeoffs with others values. Such protected values often concern natural resources, such as biodiversity issues. The term value is, however, defined as utility, which in an economic sense means that when values are protected, the marginal rate at which one good can be substituted for another is infinite, or as the authors own example, people think that no economic gain is great enough to justify clear-cutting old-growth forest. Results from Winter's study (2005) however showed that intrinsic value was important in the way people conceive natural areas. According to O'Neill (1992, 119), ''Intrinsic value is used as a synonym for non-instrumental value. An object has instrumental value insofar as it is a means to some other end. An object has intrinsic value if it is an end in itself.'' People with strong intrinsic values opted for higher levels of area protection, while those with strong use values opted for higher levels of direct use of natural areas. There were also differences between different stakeholders, in which environmentalists indicated high levels of conservation, while farmers indicated higher levels of use. The general public was in between these groups.

There has been a shift in forestry toward the management of multiple values and recognition of the important role of non-timber values in sustainable forest management, including ecological, aesthetic, and recreation values (Creighton, 1983, Carrow, 1994; Robinson, Robson & Rollins,

2001). This shift has been motivated by an increase in public awareness of environmental and forestry issues (Carrow, 1999). Forest values are those beliefs that "represent an individual's orientation toward forests" (McFarlane & Boxall, 2000, p. 6.51), and these values are have been shown to be related to our social structures and identity, through our level of experience with the forest and the people we network with (Harshaw & Tindall, 2005). The particular value of the forest environment to individuals in a spiritual and cultural sense has also been seen (Vining & Taylor, 1999). Evidence of the importance of forests to people is also found in a variety of empirical studies of environmental preference and experience (e.g., Altman and Wohlwill 1983; Appleton 1975; Kaplan 1989). It is therefore of importance of forest managers to recognize the psychological and cultural value of trees, and seek to balance them with biological and economic values. Others have shown that in general the appraisal of the current environmental conditions has a tendency to decreased as geographical distance from the person increased (Gifford, Scannell, Kormos, Smolova, Biel, Boncu, Corall, Guünther, Hanyu, Hine, Kaiser, Korpela, Lima, Mertig, Miram, Moser, Passafaro, Pinheiro, Saini, Sako, Sautkina, Savina, Schmuck, Schultz, Sobeck, Sundblad, & Uzzell, 2009). This is consistent with previous research, and attests to the robustness of the optimistic spatial bias (Dunlap et al., 1993; Musson, 1974; Uzzell, 2000).

That values are of importance within the forest sector has been shown in that salient values and trust is related (Cvetkovich & Winter, 2003). Representations of salient values comprise the individual's sense of what the important goals (ends) and/or processes (means) are that should be followed in a particular situation. Representations of value similarity involve a comparison of one's own salient values to those that are concluded to be salient for the person whose trustworthiness is being judged. In Cvetkovich and Winter's (2003) study, the trustworthiness of U.S. Forest Service in the enactment of the Endangered Species Act was shown to be strongly related to whether or not individuals perceived U.S. Forest Service as sharing their values saliently. McFarlane and Boxall (2000) have in the Foothills Model Forest studied how a wide range of stakeholders can function together in an effort to better accommodate a broad range of forest values and interests, including industrial forestry, oil and gas development, mining, and recreation - "a primary step in achieving this goal is delineating stakeholders, understanding their forest values and attitudes toward forest management and the factors influencing these values and attitudes" (McFarlane & Boxall, 2000, p. 650). In their effort they have found support for a cognitive hierarchical model of values and attitudes clearly influence by researchers such as Stern (1992).

Luo and Deng (2008) showed that environmental attitudes and nature-based tourism motivation is closely and positively related, in that those who are more supportive of concepts of limits to growth and who are more concerned about eco-crisis have a higher desire to be close to nature and to learn about nature. There are however differences between different types of tourists (Wurzinger & Johansson, 2006). Eco-tourists have been shown to express more general environmental beliefs than nature tourists, who, in turn, have more pro-environmental beliefs than city tourists. Similarly, it was found that ecotourists and nature tourists reported more proenvironmental behaviors than did city tourists. Nisbet, Zelenski, and Murphy (2008) propose a new construct related to the human-nature relationship, that of nature relatedness, and developed a measurement scale assessing the affective, cognitive, and experiential aspects of individuals' connection to nature. Results showed that nature relatedness correlated with environmental scales, behavior, and frequency of time in nature, and Nature relatedness contributed significantly to environmental concern and behavior. There are also indications that the mere frequency of visits to forest areas and forest recreation activities has a positive influence on proenvironmental behavior, even when socio-demographics are controlled for (Nord, Luloff, & Bridger, 1998).

Attitudes towards forest management have also been shown to differ between forestry and non-forestry groups. Forestry and non-forestry groups had opposite attitudes on forest industry practices, emotional and social values, and clear-cutting and forest dynamics (Willhite, Bowlus, & Tarbet, 1973). More recent studies have shown that damage to interdependent ecosystems has

large effects and international implications, and the attitudes of individuals are importantly linked to these outcomes (Gifford, et al., 2009). One example of this is that people's perception of risks can influence the acceptance of governments' environmental policies (Steg & Sievers, 2000) and the willingness to act pro-environmentally (e.g., Weinstein, 1980). Different forest treatments can be controversial to the public. A survey conducted by Ribe (2006) explored the social acceptability of a range of forest treatments, showed a clear opposition to clear cutting and retention harvests, and pointed towards existing conflicts over the acceptability of not managing forests and old growth harvests. On the other hand young forest thinning was found to be without conflict. The results further showed that socially acceptable forestry attends to scenic beauty and serves wildlife needs, while also serving human needs but not at a high cost to these first two values. Different forest management goals may be perceived to be in conflict with each other. Schroeder (1981) showed that goals that conflicted with wilderness preservation were rated lower in importance when the conflict was high and wilderness scarcity was perceived to be high, which suggests that individuals discount the importance of goals that are perceived as conflicting with a highly valued goal.

Much of the research done from an environmental psychological frame of reference on the forest has focused on the preferences related to the forest experience. Preference can be viewed as an attitude in that it is a belief about the restorative value of a given environment (Hartig & Staats, 2006). Natural environments are preferred before an urban environment, which means that a walk in the forest is reported with more favorable attitudes than a walk in the city center. This is especially true when the individual is in need of attention recovery, which the forest is perceived to better provide for compared to the urban environment. Within the preference research the dominant theoretical view is that of Kaplan's preference matrix (Kaplan & Kaplan, 1989). The preference matrix is composed of two binary dimensions. One deals with the basic human needs of understanding and exploration. The other deals with whether one is processing the two-dimensional picture plane, where the information is immediately available, or the larger three-dimensional world, which requires greater inference on the part of the perceiver. These two dimensions define four cells, coherence, legibility, complexity, and mystery. Coherence refers to features of the scene or environment that aid in organization and understanding of the scene. Legibility refers to features that foster understanding by aiding way finding and the building of a useful cognitive map. Complexity refers to how intricate or visually rich the scene is. Mystery refers to any features that encourage one to enter more deeply into environment, and then receiving interesting and new information. Coherence and legibility satisfy the basic need for understanding, whereas complexity and mystery provide opportunities for exploration. All four predictors is proposed to be positively related to preference. Herzog and Kropscott (2004) study of preference in a within-forest setting without visible pathways showed that legibility was especially important in this domain, and it predicted preference independently from coherence. The presence of landmarks and visual access contributed to the level of legibility. We do know that observable characteristics of a landscape, human artifacts, and the interactions between these are important predictors of perceived scenic quality (Vining, Daniel, & Schroeder, 1984).

There are group differences in relation to how landscapes are assessed and this can be related to the held environmental values. Identities usually related to the forest are influenced by the forest's cultural, economic, and social attributes. Urban inhabitants carry identities that are less characterized by nature values and outdoor values and have more varied values towards the forest, compared to those living outside the cities. People working in the forest sector show a more uniform view on the utilities of the forest compared to people with other occupations. (Harshaw & Tindall, 2005). Kaltenborn and Bjerke (2002) found that positive correlations were found between the ecocentric environmental value orientation and a preference for wild lands with water and for cultural landscapes. The anthropocentric value orientation on the other hand correlated positively with a preference for farm environments. The values and goals of private forest owners are dependent of the cultural, societal, social, and economic environments present in a specific country. Differences between forest owners and forest officials may be the result of an increase in

environmental awareness and the tendency for private forest owners to express their values, while forest officials tend to report ”what they observe among forest owners, both their attitudes and their actions” (Kindstrand, et al., 2008, p. 135). In addition it is known that different actors in the forest sector, such as forest managers, members of an environmental group, and the general public, may have preconceptions on how the other groups will react to different forest management problems (Vining, 1992).

It has been established that values and attitudes have an effect on intentions and behaviors (see section 1.2). Environmental activism is one of several environmentally significant behaviors that individuals can undertake with the intention of benefiting the environment (Stern, 2000). Within research on the forest sector, environmental activism has been studied to some extent. Activism in this case can be seen as based in a dissatisfaction with natural resource management and policy which then can be manifested by engagement in activist behaviors aimed at influencing management and policy decisions. McFarlane and Boxall (2003) have found that attitudes toward forest management were associated with activism. In their study they wanted to better understand activism and controversy surrounding forest management in Canada. Environmental activism directed at natural resource management has been attributed to differences in values and attitudes of different stakeholder groups (Kennedy, 1985; Vaske & Donnelly, 1999). McFarlane and Boxall (2003) was inspired by the values, attitude, behaviors models readily used in environmental psychology to depict the hierarchical influence of values and attitudes on behavior (see Figure 3), and found support for this structure (McFarlane & Boxall, 2003, McFarlane & Hunt, 2006). The values and attitudes are of important for behavior and or activism, but an elaborated model of environmental activism should also include factors such as the social, economic, and cultural context in which activism occurs.

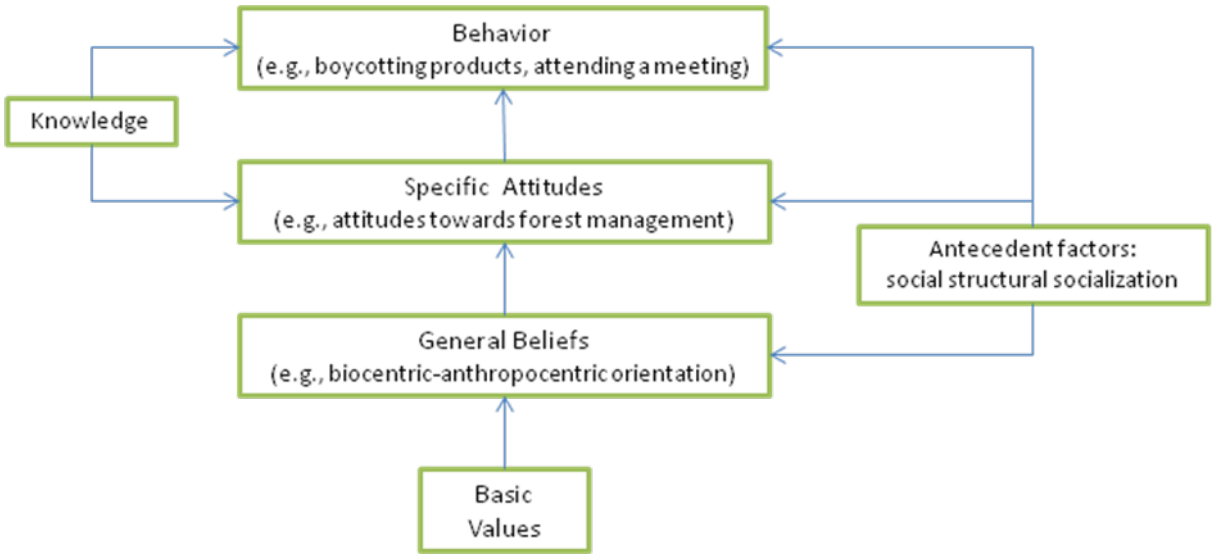

Figure 3. Conceptual representation of a cognitive hierarchical model of values, attitudes and behavior in the forest sector (Adapted from McFarlane & Boxall, 2003).

3. Method

This driver's paper was conducted as a literature review based on article searches in PsychInfo (all years) and ISI Web of Knowledge (all years) by using concepts such as: Forest, Values, Attitudes, Norms, Beliefs, and Forest management. This literature review is by no means a full review of all the research done on values, attitudes, and norms in a forest context, but provides some basic findings about the present, past, and future of the topic at hand.

4. Looking back

Why are natural environments so highly valued? Recent research suggests that viewing natural scenery stimulates the parasympathetic nervous system and has a calming effect on people under stress (Hartig et al 1991, Ulrich et al 1991). Ulrich (1993) theorized that such effects may even have an evolutionary basis in that natural selection may have favored those who can relax in a natural setting—the *biophilia hypothesis.* Kaplan & Kaplan (1989) proposed that prolonged attention to a task leads to *directed attention fatigue,* which is relieved in natural environments. Empirical studies examined environmental variables ranging from *ambient conditions*—temperature, sound, lighting, and air quality—to architectural features of buildings and neighborhoods, to built and natural features of entire communities and regions. The research emphasized individual and interpersonal levels of analysis and examined attitudes and cognitions about the environment more often than it incorporated direct measures or manipulations of objective, physical characteristics of the environment (Sundstrom, Bell, Burby, & Asmus, 1996).

Attitudes have been in focus of extensive theoretical and empirical development since the 1920s (Allport, 1935). In the 1960s and 1970s, American social scientists' interest in the concept environmental attitude increased. There was a great deal of concern relating to the environment during this decade: the Ohio Cayahoga River caught fire in 1969 capturing national attention; the first Earth Day was held in 1970; the National Environmental Policy Act was signed that same year; and energy conservation became a primary goal in the mid and late 1970s as oil embargoes severely impacted the nation. As a result of these and many other incidents, funding for research directed at the environment and human interaction with the environment became more of a priority. In 1978, social scientists Dunlap and Van Liere published an article in The Journal of Environmental Education that summarized their efforts to measure a fairly new environmental mind-set they and other researchers believed was becoming a predominant influence. At the time, many social scientists believed that a "paradigmatic" shift--a change in many people's way of thinking--was occurring. People were becoming disenchanted with the so-called "Dominant Social Paradigm," which emphasized human ability to control and manage the environment, limitless natural resources, private property rights, and unlimited industrial growth. The New Environmental Paradigm, on the other hand, emphasized environmental protection, limited industrial growth, and population control, among other issues. The two social scientists developed the New Environmental Paradigm scale to measure this mind-set. Since its development, the scale has been used in many other studies--both replicating as well as modifying the scale.

A very influential research finding with in environmental psychology is Hardin's (1968) description of self-interested abuse of shared environments. The dilemma is seen between a short-term self-interest of making large harvests from a shared resource and the harmfulness of this short-term self-interest to a long-term group interest, since collective short-term self-interest destroys the commons. A number of simulations of the so-called commons dilemma have been conducted, in which individuals harvest from a shared resource (Fusco et al 1991, Gifford & Wells 1991). Trusting others to conserve have been shown to encourage individual conservative

harvesting behavior (Mosler 1993, Parks 1994) together with rewards for cooperative behavior and punishments for selfish behavior (Bell et al 1989, Birjulin et al 1993, Harvey et al 1993). In additions, commons dilemma research have found that dividing the commons into individual territories aid in preserving the commons, since it eliminates the commons and the need for intricate systems of reward and punishment (Martichuski & Bell 1991).

When it comes to human experience and behavior in relation to nature and the forest there are some early reports on such aspects. In Shafer and Mietz's study (1969) we can see that hikers primarily emphasized the aesthetic and emotional values of the nature experience, rather than physical exercise. This indicated early that the forest experience hold a wide range of important values. Rossman and Ulehla (1977) let undergraduates assess the perceived gain from wilderness experience. The results showed that five categories of gain were prominent: emotional or spiritual experience; challenge and adventure; esthetic enjoyment of natural settings; escape from urban stresses, and anti-societal sentiment. They also showed that the subjects' expectations on receiving this gain decrease progressively from wilderness, through improved mountain-forest country, parks, and other urban outdoor settings, to indoor recreational settings and home. Later research results have indicated that preferences for natural scenes with greenery and water to be universal (Herzog 1992; Herzog & Bosley 1992; Hull & Revell 1989; Schroeder 1991; Yang & Brown 1992; Zube 1991).

The most important developments with regards to values and attitudes as drivers in the forest context are twofold. First we have seen a development in that both governments and the forest sector have come to realize and emphasize the multiple values and utilities of the forest (Willhite, Bowlus, & Tarbet, 1973). This came in Sweden as a result of the strong critique from the public following the mechanization of the forestry in Sweden during the 1960s and1970s. Since then the forest politics have included goals other than the mere financial (Rydberg, 2003). A second development of importance is the fact that we have seen a steady increase in environmental awareness over the last decades, making the public more sensitive towards environmentally damaging recourse management.

5. Looking forward

There are several potential developments and conflicts in future forest management that relates to peoples values, attitudes, and norms. The overarching dilemma can be that of a high level of environmental awareness, leading to demands on conservation of the forest resource or a eco-friendly forest management; a high demand on the forest resource through recreation and eco-tourism; and a high demand for wood products in times leading up to peak oil. In the following section a number of such developments and potential conflicts will be depicted and discussed briefly. By no means will these represent a "true" future, but instead should been seen as a brainstorming about potential conflicts and outcomes of present knowledge and trends.

Conservation Values and Attitudes in Conflict – Cognitive Dissonance

In times when 'peak oil' is a concept being used in media more frequently, we search for alternatives in order to decrease our oil dependency. The forest holds multiples values to the public, production of biomass being one in times of us approaching 'peak oil', and conservation values regarding biodiversity and recreational possibilities being others. This might lead to a cognitive dissonance (Festinger, 1957) within people

Cognitive dissonance, which is unpleasant for the individual, might be the results of a conflict between what all might be considered to be conservational values (see Figure 4).

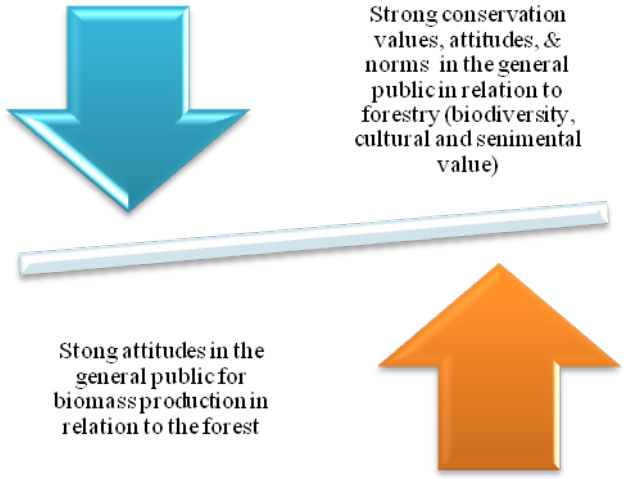

Figure 4. Conceptual representation of a potential conflict within individuals between different conservation values and attitudes.

When our Experience and Awareness Don't Match

There are indications of a growing environmental concern in the last decades (Dunlap & Van Liere, 1978, Pieters, Bijmolt, van Raaij, & de Kruijk, 1998, Dunlap, Van Liere, Mertig, & Jones, 2000). On the other hand we have seen clear urbanization, which means that people live farther away from old forest landscape. The times spent in forests are thus often spent in smaller forest landscapes close to cities (Rydberg, 2001). This does not however, mean that the public's demands on the non-monetary values of the forest have decreased, only that our experiences are restricted to

the city dwelling forest (Boman, Kriström, & Mattsson, 2000), thereby potentially influencing our attitudes towards the forest and forestry. To people in urban settings access to the forest would then be important, but so called production forests with clear cuts and young forest stands are likely not what they want (Lindgren, Pettersson, Jansson, & Nilsagård, 2000).

Decreased proximity to and experience with the older forest landscape together with a steady increase in environmental awareness in relation to the current media coverage of climate change (see Figure 5), may result in a mismatch between our knowledge/experience and the consequences of our environmental awareness. This might pose a potential future conflict, since there is more to attitudes than its positive and negative character, which relates to its power to influence attitude-relevant responding. This property is called attitude strength. Strong attitudes are consequential, lead to selective information processing, are resistant to change and persistent over time, and are predictive of behavior (Eagly & Chaiken, 1993).

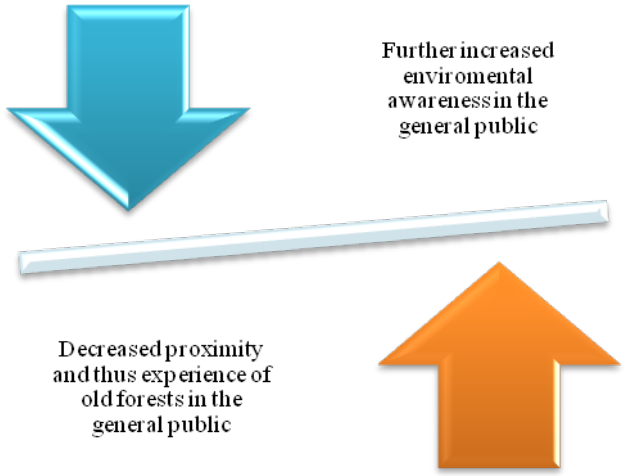

Figure 5. Conceptual representation of a potential gap between experience with the forest and level of environmental awareness within the public.

Economic, Environmental, or Social Values - Conflicting Attitudes

Again, there is more to attitudes than its positive and negative character, which is called attitude strength. Strong attitudes are consequential, lead to selective information processing, are resistant to change and persistent over time, and are predictive of behavior (Eagly & Chaiken, 1993). Selective information processing also means that to some seemingly relevant information is neglected. This then builds the ground for potential conflicts between groups. This could be between groups with professional interest in forest management, for example the abstract group of officials in the forestry sector and private forest owners. The focus of officials in the forestry sector could be one in which behavioral choices are influenced by a strong and positive attitude towards the economical value of forestry, while the focus of private forest owners could be one in which behavioral choices are influenced by strong positive attitudes towards an ecologically focused forest management (see Figure 6).

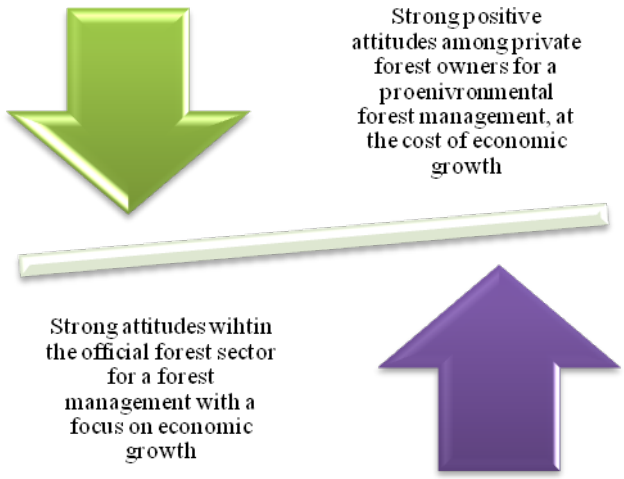

Figure 6. Conceptual representation of potential conflicting values and attitudes in relation to forest management in groups within the forestry sphere.

It could on the other hand be a conflict between groups with professional interest in forest management and the general public. The focus of the professional could for example be one in which forest management behavioral choices are influenced by a strong and positive attitude towards economical growth, while the focus of the general public could be one in which behavioral choices (buying wood products or not, activism, forest recreation, etc.) are influenced by strong positive attitudes towards a conservation for environmental and social reasons (see Figure 7).

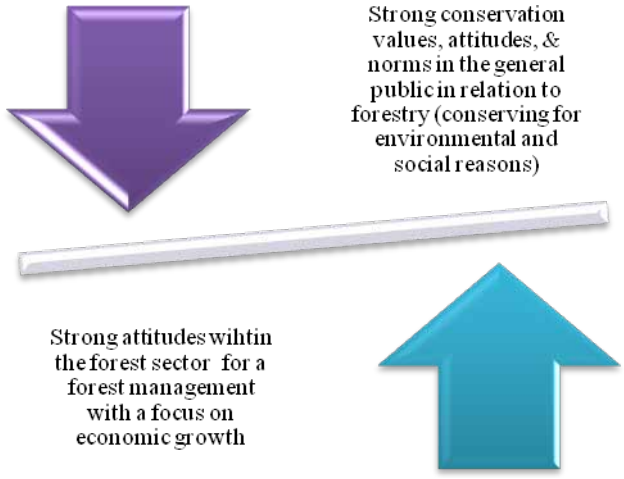

Figure 7. Conceptual representation of potential conflicting values and attitudes in relation to forest management between groups in the forestry sphere and the general public.

6. Conclusions

- The overarching dilemma can be that of a *high level of environmental awareness*, leading to demands on conservation of the forest resource or a eco-friendly forest management and a *high demand on the forest resource* through recreation, eco-tourism and *wood products* in times leading up to peak oil.

- Values and attitudes do *influence behavioral choices*, such as consumption choices, recreation choices etc., and can be changed if the forestry sector is perceived not to behave in accordance with individually held values and attitudes. It boils down to a question of legitimacy and trust.

- Held values and attitudes may be hard to change, once established, which potentially could lead to *conflicts between different groups with different views and interest* in the forest, and potentially *within each individual* when strongly held values and attitudes are conflicting.

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Appendix 1. How values, attitudes, and norms affect other drivers

Other Drivers	**How values, attitudes, and norms affect other drivers**
Climate change and climate politics	Political ideology has its relations to the basic value system of individuals, and subsequently politicians and politics are influenced by values, attitudes, and norms
Energy and air pollution	Values, attitudes, and norms influence our behavioral choices, behaviors requiring energy to different extent and resulting in air pollution to different extent
Geopolitics and conflicts	Values, attitudes, and norms influence behavioral choices, which is an essential part of any political decision and any conflict.
Governance	The perceived legitimacy of any specific form of governance is influenced by attitudinal factors – if the governance is perceived illegitimate the governance can change as a result
Demography	
Land use claims (in Sweden)	Our value, attitudes, and norms influence our specific beliefs about how different landscapes should be used.
Technological developments	Values and attitudes influence, distinctively from socio-demographics, the level of adoption of new innovations, which is essential for new technology to make a market breakthrough
Markets for forest products	Values, attitudes, and norms influence behavioral choices, such as our consumer choices.
Ecological disasters	

Appendix 2. How other drivers affects values, attitudes, and norms

Other Drivers	**How other drivers affects values, attitudes, and norms**
Climate change and climate politics	Reports on climate change make the individual more environmentally aware, a form of belief, with an effect on specific behavioral attitudes and subsequent behavioral choices
Energy and air pollution	Reports on depletion of an energy resource and reported or experienced air pollution will help shape our attitudes, beliefs, and norms in relation to managements policies for example.
Geopolitics and conflicts	We form attitudes and beliefs about the person/group we are in conflict with, which may prolong the conflict.
Governance	If there is a dissonance between our values/attitudes and our behavior we might look outside ourselves for reasons for our behavior – *I have to act in this manner even if it is against my values and beliefs.*
Demography	Van Liere and Dunlap (1980), found a effect of socio-demographic characteristics on environmentalism In general, young, urban, politically liberal females of high social class are more concerned about the quality if the environment than their opposites. Group norms in "my" demographic category *(I am an urban dweller/ environmental activist/private forest owner with a green beliefs system/ young/old)*
Land use claims (in Sweden)	The social value of the forest is perceived differently, as a result of different values, attitudes, and norms.
Technological developments	A rapid technological development may make technology averse individuals form negative attitudes towards the technological products/innovation at hand.
Markets for forest products	Indirectly, through the commercial marketing of forest products, markets for forest products then influence our attitudes towards these products in both a negative and/or positive direction.
Ecological disasters	Reports on ecological disasters make the individual more environmentally aware, a form of belief, then having a effect on specific behavioral attitudes and subsequent behavioral choices