Barriers to Environmental Concern

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Abstract

A high level of environmental concern is likely to be an important prerequisite of long-lasting pro-environmental behavior, and thus long-lasting decrease in environmental impact. However, several barriers hinder its establishment. This review essay aims to systematically summarize the most important of these barriers. The 21 barriers can be divided into two groups: one is related to the obtainment of information on environmental problems (subgroups: (1) direct, sensory obtainment of information and (2) the obtainment of mediated information), and the other is related to the mental appraisal processes concerning environmental problems (subgroups: the appraisal of (1) the severity and probability of the threat, (2) responsibility and affectedness and (3) coping). The accurate identification of the barriers hindering the rise of environmental concern is essential to removing or reducing them.

Keywords: *environmental concern, environmental attitudes, environmental risk perception, pro-environmental behavior*

Introduction

In the literature it is almost commonplace that people are definitely concerned about environmental problems. Therefore, it is not the weakness of environmental concern, but some other factors (e.g. the lack of available alternatives) that hamper them in undertaking pro-environmental behavior. Why then is it worth dealing with the factors hindering the growth of environmental concern? A more thorough examination of the above-mentioned view makes the picture less clear for several reasons.

First, though the results of public opinion polls testify to a rather high level of environmental concern all over the world (e.g. Dunlap et al. 1993), this cannot be considered overwhelming (Bloom 1995). This means that some further rise would be possible quite easily. In relation to these results, in their U.S. sample, Ellis and Thompson (1997) found that although a certain level of environmental concern was characteristic of the whole population in the examined part of the country, the *intensity* of these concerns varied immensely.

Second, it is also possible that the results of the public opinion polls mentioned above derive partly from the fact that environmental concern has increasingly become a norm in societies. This means that it has become increasingly improper to deny environmental problems (or that it has become increasingly proper to be concerned about them), just as it has become increasingly improper to be (overtly) racist in most communities and societies nowadays — racism survives in latent forms, however. That is, the rather high level of environmental concern measured in polls may in part reflect social expectations rather than real concern (Castro and Lima 2001).

Third, although we might accept that environmental concern is high *altogether*, it is quite possible that we should be more concerned about some of the environmental problems. It has turned out several times that we were not really concerned about certain environmental problems in the past, despite the fact that some scientists drew our attention to them. That is, these were so-called imaginable surprises (Schneider et al. 1998). For instance, the nobelist Arrhenius showed at the end of the 19th century already that extra carbon-dioxide deriving from the burning of fossil fuels may enhance the greenhouse effect (Arrhenius 1896). Nevertheless, only in the 1980s, have we really begun to worry about global warming, and considerable international cooperation aiming to cut the emission of greenhouse gases only began in the 1990s.

What is Environmental Concern?

First of all, the key concept of this paper has to be defined, since in the literature there is no uniform definition of environmental concern accepted by everyone. Instead, several meanings of the concept can be found (Stern 1992; Dunlap and Jones 2002). Two main approaches of environmental concern can be distinguished in the literature: the policy and the theoretical approach (Dunlap and Jones 2002). I follow the latter, which is built on attitude theory. That is, I consider environmental concern as an environmental attitude. According to the classical tripartite conceptualization, attitudes consist of cognitive, affective and conative dimensions. The last one of these means predispositions to behavior in most cases, though some authors also include behavior itself in the notion of environmental concern (e.g. Dunlap and Jones 2002); I person-

ally do not include it. Attitudes are sometimes narrowed down to the affective component involving an emotional and an evaluative element (Dunlap and Jones 2002; Finucane et al. 2000; Slovic et al. 2004). Proceeding from this idea, some authors define environmental concern as an affective environmental attitude (e.g. Schultz et al. 2004, 2005). I follow this narrower definition, though it is obvious that the three components of attitudes cannot be separated entirely.

Cognitive attitudes consist of beliefs and norms. It is logical to assume a positive correlation between cognitive and affective attitudes. For example, if somebody knows that acid deposition destroys forests (s)he is likely to be worried about it. However, this is not always the case, since, for example, it might well happen that though (s)he knows that it is a problem for others, (s)he herself/himself is not interested in the fate of forests. That is, this more intellectual judgment (our awareness of a problem and our own definition of it as a problem or risk) does not always mean that we are concerned about the issue in a narrower (purely affective) sense as well (e.g. Bickerstaff and Walker 2001). The results of the empirical studies of Sjöberg (1998) confirm this view. These show that only a weak correlation can be observed between the perceived level of risk (a cognitive attribute) and the level of worry (an affective, emotional attribute). This is important, for instance, because in spite of the presence of strong cognitive attitudes, the weakness of the affective component is very likely to also weaken the predisposition to behavior, and thus the realization of the behavior itself. Empirically, however, it is hard to distinguish between affects and cognitions — at least when more general beliefs are examined, that is, the notion of cognition is not reduced to knowledge, a very special type of belief (Dunlap and Jones 2002). This raises a difficulty. Below I often refer to empirical studies in order to support my statements. Indeed, some of these works do not make it entirely clear whether the environmental concern of the examined persons refers to cognitive or affective attitudes. This should make us cautious when interpreting these empirical studies. The above issues raise another doubt about the studies showing a high level of environmental concern in the population: these might reflect cognitive rather than affective attitudes.

A positive correlation can be assumed to exist between affective and conative attitudes as well, which, in most cases, is likely to be stronger than that between affective and cognitive attitudes. However, the reasons for pro-environmental behavior and obviously also the predisposition to it can sometimes be independent of environmental concern (e.g. mere frugality).[2] And although the motivations behind the predisposition to behavior can be explored quite well, and thus predisposition attributable to environmental concern can be separated from that attributable to other factors, this is not carried out in every empirical study. Hence, though it is in many respects justifiable that certain authors (especially those focusing on behavior) identify environmental concern with predisposition to pro-environmental behavior (Stern 2000; Stern et al. 1995); I do not share this definition.

Certainly, it is not enough to define environmental concern simply as affective environmental attitude. It has a narrower meaning: environmental concern is only a subset of environmental attitudes. Thus, by environmental concern I mean (1) affective attitudes referring to the seriousness and importance of environmental problems, (2) positive affective attitudes referring to those affected by environmental problems, and (3) negative affective attitudes referring to (a) people, groups of people and organizations causing environmental problems, (b) their actions, and (c) the situations caused by them. That is, (1) the worry, fear, sadness, etc. felt about environmental problems as attitude objects, (2) the pity, sympathy, etc. felt towards those affected by environmental problems as attitude objects, and (3) the contempt, guilt, anger, outrage, etc. felt towards those causing environmental problems (or towards their actions) as attitude objects, or about the situations caused by them as attitude objects. The emotions belonging to the first two groups are loss-based emotions related to the consequentialist evaluation of problems and risks, while those belonging to the third group are ethical emotions related to the deontological evaluation of problems and risks (Böhm and Pfister 2000). This definition of environmental concern is broader than the usual one, since the ethical component is only seldom included within concern.

According to the tripartite classification of value orientations introduced by Stern et al. (1993) I differentiate among egoistic, social altruistic and biospheric environmental concerns. A person can be concerned about the fate of herself/himself, other people and non-human natural entities (mostly living organisms). This differentiation is useful because certain factors do not weaken every aspect of environmental concern, but only one or two of the above three types of it. Of course, these three types of concern do not exclude one another, most people are likely to have all of them. At the same time, their proportion can show a considerable difference from person to person.

The Focus of the Inquiry

Below I try to systematically summarize the most important factors impeding the increase of environmental concern. Of course, these factors are often interconnected and cannot be separated entirely. All of the factors refer to at least one important environmental problem, but usually more of them. Although the factors are related to lots of environmental problems, the present study focuses only on problems at-

tributable, at least in large part, to human activities. (Thus, I do not deal, for instance, with earthquakes.) It is not among my aims to rank the factors according to their importance. It would be quite an impossible task anyway, since the dominant factors differ across environmental problems. I try to explore both psychological and socio-cultural factors, though these two categories cannot be sharply distinguished, and thus I do not try to categorize the factors accordingly. Consequently, the study focuses on the individual level, though it is not forgotten that individuals are shaped by their socio-cultural context. I do not deal with the reasons behind the differences in the level of environmental concern among social groups or individuals, that is, for example, with demographic or personality factors.[3]

The fact that both psychological and socio-cultural factors can be mentioned here also means that some factors refer to people universally, while others are culturally dependent. The latter factors refer to Western culture, but this, of course, does not preclude that at least some of them are valid in other cultures as well. (Though Western culture is rather heterogeneous, it is still possible to make some general statements about it.) The main reason for the focus on Western (or westernized) culture is that the bulk of the research related to the factors in question has been done in countries belonging to this culture. However, this inevitable focus is completely justifiable, since people who live in countries belonging to this culture exert the greatest impact on the environment (e.g. Wackernagel and Rees 1996). Therefore, it is in these countries that the increase in pro-environmental behavior would be the most necessary. And thus, the increase in environmental concern would also be most important in these countries. What is more, Western culture has been spreading throughout the world.

Concern and Behavior

Obviously, the real aim in today's societies would be the increase of pro-environmental behavior and so the decrease of environmental impact. The growth of environmental concern is only a device to achieve this aim, and it is not worth much without behavioral changes. Members of societies having a low impact on the environment should not necessarily have a high level of environmental concern, since environmental impact is affected by several other factors as well. For example, in a hunter-gatherer society characterized by — among other factors — low population density, low economic output and consumption, simple technologies, and low energy consumption, despite the low environmental concern of people, the level of environmental impact is not significant. (The low concern, in general, can be supposed with reason, since there is no point in being environmentally concerned when there are few, if any, environmental problems.) Our societies, however, are characterized by high population density, high economic output and consumption, complex technologies (often having massive impacts on the environment), and heavy energy consumption. These should be reduced in order to diminish our impact on the environment, which means pro-environmental behavior.

Yet, theoretically, not even this pro-environmental behavior requires environmental concern, political or economic constraints suffice. However, pro-environmental behavior deriving from such external constraints instead of internal factors is not likely to become long-lasting in societies characterized by market economy and democracy (and Western societies are of this kind). It is because these constraints can cease to exist automatically (e.g. because of the fluctuation of prices) or can be stopped intentionally (e.g. the replacement of the environmentally concerned political elite by election). Likewise, it cannot be considered an ideal solution when it is dramatic negative social side effects that evoke our pro-environmental behavior. It would be better to avert these. Consequently, unless we change the political and economic system, it is likely that a long-lasting decrease in environmental impact without serious negative consequences can only be achieved in contemporary Western societies if the environmental concern of the majority of people reaches a high level. Obviously, this in itself is not at all a sufficient condition of pro-environmental behavior, but seems to be one of the most important prerequisites (e.g. Fransson and Gärling 1999; Stern 2000).

What is New?

This review paper is based mostly on research of the literature. I collected results scattered across the literature and complemented them with some of my own ideas. By putting together small pieces of mosaic gathered from diverse places, I have tried to create a picture never seen before, that is, a work integrating a great variety of scientific results and ideas. It is built upon already existing frameworks and theories with a somewhat different focus: the social amplification framework (Kasperson et al. 1988, 2003), the value-belief-norm theory[4] (Stern 2000; Stern et al. 1999), and especially the (modified) protection-motivation framework (Gardner and Stern 2002; Rippetoe and Rogers 1987).

In the literature I have not found any works that would be similar to the present one. The only real exception is Chapter 9 of Gardner and Stern (2002), which deals with the under- and overreaction[5] of environmental hazards. Their review is so thorough and detailed that this paper inevitably overlaps with and also relies on it to some degree. Nevertheless, the two works differ in many respects. For instance, several factors unnoticed there are discussed here, and the struc-

ture of the two works is also considerably different. The only other article that somewhat resembles this paper is that of Milbrath (1995). However, his way of posing the question is slightly different and less specific. Hence, though his work has been an important inspiration to this article, only a minimal overlap can be found between the two papers.

The Most Important Factors Hindering the Rise of Environmental Concern

Below I discuss the most important factors hindering the rise of environmental concern. Table 1 gives a review of these factors.

The Obtainment of Information on Environmental Problems

The factors hindering the increase of environmental concern can be divided into two major groups. The factors belonging to the first group are related to the obtainment of information on environmental problems. This group can be broken up into two subgroups. The factors in the first subgroup are related to the direct, sensory obtainment of information, while those in the second subgroup are linked to the obtainment of mediated information.

Direct, Sensory Obtainment of Information on Environmental Problems

The direct, sensory perception of environmental problems (that is, primary information) promotes environmental concern more than information obtained from other people, organizations or through the media (secondary information). Several empirical studies have shown that information obtained from the media plays a smaller part in the development of environmental concern than direct experience (at least in the cases of those environmental problems that can be expe-

Table 1. The systematic summary of the most important factors hindering the rise of environmental concern.

I. The obtainment of information on environmental problems

I/A. Direct, sensory obtainment of information on environmental problems

1. Environmental factors and their effects that are imperceptible
2. Habituation
3. Too slow changes
4. Geographical distance
5. The distancing effect of information technologies

I/B. The obtainment of mediated information on environmental problems

6. The media tends to defend the status quo
7. Environmental issues are often discussed not as problems or risks by the media
8. Flood of information
9. The most afflicted are the least able to make their voice heard (and vice versa)

II. Appraisal processes related to environmental problems

II/A. Threat appraisal

II/A/1. The appraisal of the severity of the threat

10. Narrow construal of self
11. Stable nature
12. Delayed effects

II/A/2. The appraisal of the probability of the threat

13. The lack of personal experience
14. The (relative) lack of collective experience
15. History as perpetual progress

II/B. The appraisal of responsibility and affectedness

16. The problem is attributed to non-human forces
17. The problem is attributed to humans without considering the causer(s) responsible
18. Responsibility is divided among many people — there is a considerable overlap between the group of responsible persons (those who gain benefits) and that of affected persons

II/C. Coping appraisal

19. Faith in technology
20. Faith in the existing political and economic system of institutions
21. Alternatives considered costly or difficult to realize

rienced directly). This was found, for instance, by Bickerstaff and Walker (2001), who examined the social perception of air pollution in an English city. However, the direct, sensory obtainment of information often comes up against difficulties.

1. Environmental Factors and their Effects that are Imperceptible. Several of the environmental factors that have been changed by human activities are not perceptible. These factors include ionizing radiations, UV radiation, several gases in the atmosphere (e.g. carbon monoxide), etc. In some cases even their effects are imperceptible (at least in the short-term). Since for the vast majority of us visual perception is the most important device in sensing the surrounding world, the greatest difficulty arises when the problematic environmental factors or their effects are invisible (Winter and Koger 2004).

In their above-mentioned study Bickerstaff and Walker (2001) found that people became aware of poor air quality primarily by sensory experience (and in the second place by health effects), and these were also the main factors in the formation of environmental concern. Among the sensory experiences they found visual perception to be the most important (though olfactory perception had almost the same importance).

An interesting counter-argument could be that it is sometimes imperceptibility itself that might enhance concern by increasing, for instance, fear (e.g. Johnson 1993). For this, however, it is indispensable that other people, organizations or the media call our attention to the problems otherwise imperceptible, which is far from always being the case.

2. Habituation. The human nervous system performs better in perceiving changes, rather than constancies. We easily get accustomed to a degraded, but at the same time constant, environmental condition. We consider it natural and it goes virtually unnoticed if we live in it constantly, even if we perceived it when the degradation took place (sensory adaptation). For example, for a person living in a smog-free area, heavy air pollution soon becomes apparent when (s)he visits a big town, while the same is not true for a person living in that town for years (Ornstein and Ehrlich 2000).

3. Too Slow Changes. Not only the perception of constancy but also that of very slow changes is a hard task for our nervous system. Negative environmental changes often happen very slowly, so they are not easily or even not at all perceptible by the human brain (Ornstein and Ehrlich 2000). For instance, big oil tanker catastrophes usually shock people and they show great concern. If, however, a similar environmental degradation takes place gradually within decades, it barely strikes anybody.

It is particularly hard to perceive a slow trend (and even detecting it by the help of sophisticated instruments and statistical methods meets difficulties) in the cases of variables that fluctuate considerably. Global warming is a good example for this "low signal-to-noise ratio" (Pawlik 1991). While the increase in average global surface air temperature was, on the average, only about 0.006 ˚C/year in the 20th century (Houghton et al. 2001), the between-season variations of the consecutive years in mean surface air temperature exceed this value by three orders of magnitude (Hansen and Lebedeff 1987). It is likely that this played an important part in the lack of wide-ranging consensus among climate researchers on the reality of global warming that characterized the scene until recently (Diamond 2005).

4. Geographical Distance. Several environmental problems arise far from our own place of living (though we ourselves might sometimes contribute to their emergence). What is more, often we do not visit these places personally. Naturally, in these cases there is no chance for direct, sensory obtainment of information, even if the problems could be perceptible. In addition, these distant problems do not only have an impact locally, but, indirectly, may also affect other places, and may even have global consequences. Therefore, in some cases, beside other people or other living organisms, even we ourselves can be affected by these problems.[6]

5. The Distancing Effect of Information Technologies. Today our time spent in the worlds offered by information technologies (especially by television and internet) is increasing. Therefore, we gain less and less direct experience of our physical environment and so of environmental problems. Although information technologies may inform us of these problems,[7] and may thus raise environmental concern, this, as mentioned above, is less efficient than direct experience. And though the use of these technologies can raise our concern about the environmental problems of distant places usually unvisited by us (this is true mainly for the most spectacular and interesting places, e.g. some national parks), it alienates us from our own place of living. Hence, it is likely that these technologies decrease concern about the environmental problems of most places.

The Obtainment of Mediated Information on Environmental Problems

Information mediated by other people, organizations or the media play a very important part even in the interpretation of perceptible environmental problems. And it has a particularly crucial role in the case of imperceptible environmental problems (Beck 1986). Although it would be a big mistake to underrate the importance of personal communication, it

seems very likely that the media, and especially the news media, is the primary source of information about risks nowadays (Major and Atwood 2004). This is also likely to be true for environmental risks and problems. The central role of the media seems to be supported by a study considering an interval of several years that showed a very strong positive correlation between the extent of media coverage on (global) environmental problems and the level of environmental concern (Harrison et al. 1996).[8]

Therefore, this chapter of the article is mainly (but not exclusively) media criticism. However, the media is very heterogeneous and difficult to survey as a whole. Thus, any generalization about it may be taken only very carefully and to a limited extent. In most cases the empirical studies (content analyses) focus only on a single medium (or a few media) of a single country (or a few countries), on a single (or a few) environmental problem(s), and on a single (or a few) short period(s). Hence, these cannot really give us a representative picture about the media as a whole. This would not be a big problem here if there were a lot of empirical studies considering the effects of the media on environmental concern. However, this does not seem to be the case at this time. In addition, the media is changing quickly and often substantially (nowadays due mainly to the growth of internet use), thus the obsolescence rate for our truths about it is quite fast. What is more, it is hard to track the social effects of the media, and thus it is not an easy task to understand the effects of the media on environmental concern either. According to what is said above, the section dealing with the media is relatively short.

6. The Media Tends to Defend the Status Quo. The growth of environmental concern (would) often lead(s) to the decrease in the power, social prestige and material welfare of the power elites (mostly the economic elite). Probably even more importantly, the profit and market share of several (large) companies (would) also decrease. Obviously, their short-term interest demands just the opposite. Therefore, these people and organizations try, among other things, to deny or trivialize environmental problems or the role of human activities in them. They also try to question the credibility of the people and organizations urging the importance of these problems (and thus the necessity of change). In order to achieve this they use diverse means from the blocking and outright manipulation of information to more subtle methods, e.g. diversionary reframing (McCright and Dunlap 2003 and references therein).

These efforts are often successful due precisely to their power, and the media plays a great part in this. A large part of the media is under the direct or indirect influence of some of these people and organizations. For example, the owners of media companies and the members of their directorial boards are often leading officials of other large companies or banks. Other media companies in turn are closely related to the political elite or parties that are often tightly entwined with the economic elite. In addition, media companies are heavily dependent on their advertisers. Hence, they are not likely to often reject those who are able to buy columns/airtime for themselves. What is more, they are not willing to give great publicity to ideas that might hurt the interests of their (main) advertisers. Since power elites or companies defending the status quo (that is, their own power or profit and market share) typically own significantly larger resources than those urging the importance of environmental problems (and thus the necessity of change), they get much greater publicity in the media than the latter.

The 13 year activity of the Global Climate Coalition (GCC) illustrates well several of the above claims. This lobby organization rallying dozens of large companies (mainly representatives of industries related directly to fossil fuels) campaigned intensively and quite successfully against the planned climate protection measures (e.g. the Kyoto Protocol).[9] In the mid-1990s the GCC spent millions of dollars for advertising in the U.S. media, warning people and policy makers: if governments took steps towards the (obligatory) reduction of carbon-dioxide emission, it would paralyze the U.S. and global economy. In addition, in leading newspapers it promoted the publication of articles wherein scientists holding views favorable to the GCC (e.g. denying or trivializing the dangers of global climate change) gained opportunity to show themselves (Ayres 1999; McCright and Dunlap 2003).

7. Environmental Issues are Often Discussed not as Problems or Risks by the Media. Environmental issues are often presented in the media without mentioning the related risks or problems. Major and Atwood (2004) examined Pennsylvanian newspapers for a one-year period and found that almost two-thirds of the environmental news stories did not mention risks.[10] For example, one of these news stories was about a fishing ban for a river because of pollution, but the serious health problems that might result from the consumption of fish caught from the polluted river were not mentioned. The above things can be the result of several factors from time limits to the limited knowledge of journalists (even the defense of the status quo). In addition, this is in accordance with the frequent statement that the news usually focuses on events rather than problems. Therefore, despite media attention, environmental concern often does not increase simply because problems and risks remain unstated.

8. Flood of Information. In "the information age" we are bombarded by an enormous amount of information from diverse sources. In this flood of information the news on envi-

ronmental problems often get virtually lost, and so it is hard to hear them. And even if these pieces of news reach us, the shower of information generally results also in a lack of enough time to digest them properly, to think about them deeply (Milbrath 1995; Sjöberg 1998).

9. The Most Afflicted are the Least Able to Make their Voice Heard (and Vice Versa). It is well-known that the marginalized (mostly the poorest, but also some other social groups, e.g. some ethnic minorities) are the ones afflicted the most by environmental problems. They are the ones, for instance, who are unable to move away from an area afflicted by environmental damages, either because they cannot afford it, or because their identity is closely linked to that locality. What is more, they are often not informed sufficiently about the dangers threatening them, for example, because of their illiteracy or because some people impede their access to information. This limited flow of information is also valid in the opposite direction: even if they are well aware of the dangers, very often they can make their voice heard effectively in the social discourse only if certain organizations (or sometimes individuals) help them. (And obviously, the interests of future generations and non-human living organisms can only be articulated by such advocates, e.g. conservationist groups.) This rarely happens however, and hence problems afflicting and risks threatening the marginalized do not become widely known in most cases. In addition, it is exactly those people (the social elite, to put it simply) who are able to make their voices heard the most, who are afflicted the least by adverse environmental effects (since they are the most able to defend themselves against them). What is more, in general they gain the most advantage from the activities causing environmental problems. For the above reasons environmental problems often do not make it on the agenda of social discourse, which hinders the rise of environmental concern.

Appraisal Processes Related to Environmental Problems

The other major group of factors impeding the growth of environmental concern contains the factors linked to the appraisal processes related to environmental problems. Three kinds of appraisal processes can be distinguished indicating the three subgroups of this group: threat appraisal, the appraisal of responsibility and affectedness, and coping appraisal.

Threat Appraisal

This subgroup can be divided into two further parts: the appraisal of the severity and that of the probability of the threat.

The Appraisal of the Severity of the Threat

The following factors are related to the mental process through which a person tries to appraise how much damage the environmental problems (would) do to herself/himself and/or to other people and/or to non-human natural entities.

10. Narrow Construal of Self. The construals of self of the members of several cultures clearly include other people and non-human natural entities (e.g. Bragg 1996 and references therein). Western culture, however, is characteristically an individualist one, and hence it is not surprising that our construal of self more or less ends at the borders of our body. It involves other people (including future generations) or non-human natural entities only to a limited extent, if at all. This means that we do not really feel interconnected with them. The separateness of the self from the surrounding world is one of those basic ("primitive") general beliefs of Western culture that because of their deep-rootedness generally exist in us as unconscious axioms — at least until they are brought into question by some bizarre circumstance (Schultz et al. 2007).[11] The narrow construal of self weakens social altruistic and biospheric concern as demonstrated by empirical studies as well (Schultz and Zelezny 1999; Schultz 2000, 2001; Schultz et al. 2004, 2005).[12]

11. Stable Nature. If we are convinced that natural systems are stable (robust and resilient), and can easily adapt to human activities so these cannot really disturb them (natural resources are abundant and nature can easily absorb and neutralize human-caused pollution), it is not likely that our environmental concern reaches a high level. Schmidt and Gifford (1989) confirm this assertion empirically. Dunlap and his colleagues (2000) as well as Steg and Sievers (2000) examined a small sample of members of Western culture (U.S. and Dutch, respectively). Both of them found that though the idea of stable nature cannot be considered dominant, a significant proportion of people (roughly 10-20%) hold this belief.

12. Delayed Effects. The effects of certain environmental factors on living organisms do not appear immediately. Since temporal disjunction makes it more difficult to recognize causal relationships and gives way to alternative explanation, it is hard to be concerned about such factors, even if they are perceptible. Good examples are those (urban) air pollutants, some of them are perceptible, that are scientifically proven to be able to cause certain malignant tumors (especially among the elderly). (An example for such pollutants is ozone.)

As in the case of imperceptible environmental factors, the objection might be raised that the delay of effects increases concern instead of decreasing it (e.g. Fischoff et al. 1978). However, what was mentioned there is also valid here:

if other people, organizations or the media do not call our attention to the problem effectively (which is often the case), the level of concern remains low.

The Appraisal of the Probability of the Threat

The factors below are related to the mental process through which a person tries to appraise the probability of the occurrence of environmental problems.

13. The Lack of Personal Experience. When we try to estimate the probability or frequency of a future event, almost all of us regularly rely on the so-called availability heuristic (e.g. Tversky and Kahneman 1973, 1974). According to this, the harder it is for us to imagine or recall a similar event in the past, the lower we estimate the probability or frequency of a future event (and vice versa). In our lives we have not experienced some of the environmental problems (or have experienced them only to a smaller extent), but according to scientific predictions and/or past experiences there is a certain probability for their occurrence in the future. However, we are the prisoners of our own experiences, which means that it is difficult for us to conceptualize risks not experienced personally (Kates 1962; Gardner and Stern 2002). Not only are brand new problems hard to imagine, but also problems similar to the ones experienced personally, yet more serious than those (e.g. a hurricane more devastating than the one we lived through). Therefore, we consider problems not yet experienced less threatening and probable than those comparable to the ones we have already dealt with.[13]

Taylor and his colleagues (1988) examined the perception of droughts among farmers living in the region of the Ogallala Aquifer. They found that the personal experiences of farmers with droughts in their lives substantially influenced the severity of droughts they projected for the future. Older farmers who lived through the severe droughts of the past considered the future occurrence of similar events more probable than younger farmers who only heard about these and experienced only less severe droughts.

14. The (Relative) Lack of Collective Experience. As mentioned above, we are less concerned about problems not experienced personally. Nevertheless, our concern might reach a high level even in these cases, provided we often hear of these problems (e.g. from the accounts of other people). However, the majority of the environmental risks threatening us only rarely (e.g. climate change threatening with social collapse) or never (e.g. health problems due to the depletion of the stratospheric ozone layer) occurred before, which means that the availability heuristic acts against high level of concern. Hence, we are prone to estimate the future probability and frequency of these problems low. Although some information refers to their future occurrence, the lack of collective experience often makes us unable to interpret these pieces of information correctly. This situation is certainly exacerbated by the fact that we are often unaware of certain past environmental problems.

15. History as Perpetual Progress. Since the age of Enlightenment, human history has usually been considered in Western culture as the chronicle of (more or less) perpetual progress (improvement, development). (Such an idea was virtually non-existent in earlier societies, at least in a mundane sense.) Holding such a view of history makes it hard to imagine a future that is not better than the present. And it is still harder to imagine that the future can be even worse, for instance, because of environmental problems. (This belief is closely related to technological optimism, see below.) A result of Dunlap and Van Liere (1984) may serve as empirical support to the above. In their sample they found a clear negative correlation between the level of environmental concern and the faith in future material abundance. (The latter was measured, for example, by asking people how much they agree with the assertion that they "are going to have to learn to do without many of the things they have taken for granted in the past".)[14]

The Appraisal of Responsibility and Affectedness

The level of our environmental concern is also affected by our moral judgments related to environmental problems. Especially important is whether we feel someone responsible for the given problem, and whether the problem threatens people or other living organisms that are innocent in its creation. The more we feel the given situation morally tolerable, the less concern we tend to have (Stern et al. 1986). The factors below are related to the mental process through which a person tries to appraise the responsibility in the creation of environmental problems, and the affectedness by these problems.

16. The Problem is Attributed to Non-Human Forces. If instead of human activities, we attribute an environmental problem to natural causes, we are usually less concerned about it. The reason for this is that in these cases deontological evaluation is not really intensive. The attitudes (ethical emotions) related to this kind of evaluation referring to people, groups of people and organizations causing environmental problems are lacking. There is nobody to be angry with, we do not feel guilt, etc.

The existence of human responsibility is equivocal, for instance, in environmental problems having multiple possible causes (both human and natural), or when the negative effects of the underlying human activities are delayed, or when the problems can be attributed to human activities only through

complex causal relationships (All of these three attributes are valid for global climate change, for example).

17. The Problem is Attributed to Humans Without Considering the Causer(s) Responsible. A large share of environmental problems are side-effects of human activities not intended to cause environmental problems, to harm people and other living organisms. In some cases it is only the actors themselves who are not aware of the negative side-effects (or even if they are, they have no other choice than to act that way), while in others nobody is aware of them. We tend to be less angry, if at all, with people, groups of people and organizations in cases where they cause environmental damages unintentionally (Nerb and Spada 2001) — for instance with those millions who used to use deodorant sprays containing ozone-depleting halogenized hydrocarbons in the mid-20th century.

18. Responsibility is Divided Among Many People — There is a Considerable Overlap Between the Group of Responsible Persons (Those Who Gain Benefits) and that of Affected Persons. There are several environmental problems to which almost everybody contributes (and generally also gains some benefit from the activity that causes the problem), so there are virtually no innocents (at least humans) to be threatened by these problems. In addition, the responsibility of a single person is low in itself. An example for such a problem is the polluted air of a city, for which the vast majority of the city-dwellers is responsible to some extent, since almost everybody travels by vehicles run by internal combustion engines.[15] That is, virtually none of the affected humans is innocent, and at the same time every person has only a slight responsibility. Though sometimes we look for and find scapegoats in such cases too (mostly in order to shift our own responsibility), when we do not act in this way our ethical emotions are less intensified, and so we are less concerned (Böhm and Pfister 2000).

Coping Appraisal

The three factors below are related to the mental process through which a person tries to appraise the ability of himself/herself, or the society of which (s)he is a part, to cope with environmental problems.

19. Faith in Technology. Many people are technological optimists saying that by the help of human ingenuity appearing in the shape of technology (and the science supporting it) we are (or will be) able to overcome any kind of environmental problems. In the empirical study of Dunlap et al. (2000) a considerable proportion of people (roughly 25-60%) held such beliefs. Hence, it sounds logical that faith in technology (and the supporting sciences) acts against environmental concern. The empirical studies unanimously show this negative correlation (Dunlap and Van Liere 1984; Kilbourne et al. 2001, 2002; Schmidt and Gifford 1989), though in some cases this correlation is insignificant. A closely related question is that of how much we trust the knowledge of scientific and technical experts. According to the empirical studies of Sjöberg (2001), the more we believe that the experts know the possible effects of an (environmentally) risky technology (that is, there are no unknown effects), the less risk we perceive.

20. Faith in the Existing Political and Economic System of Institutions. In the states belonging to Western culture the dominant political system is liberal democracy and the dominant economic system is market economy. The stronger one believes that these systems are convenient, the more (s)he tends to think that even if problems (e.g. environmental problems) appear, they are manageable within these systems. Thus, (s)he does not think more radical changes are necessary, which in turn impedes the growth of concern. For example, a person committed to liberal democracy is inclined to consider environmental problems merely as the consequences of insufficient jurisdiction. Hence, the problems can be resolved by making new laws and by the better enforcement of the old ones. A person committed to market economy is inclined to consider environmental problems as merely market failures that can be resolved simply by the adjustment of prices (e.g. by the internalization of externalities or by the elimination of imperfect competition). It is shown empirically that the level of environmental concern of people having more faith in the existing political and economic system of institutions tends to be lower (Kilbourne et al. 2001, 2002).

21. Alternatives Considered Costly or Difficult to Realize. Our negative emotions (e.g. fear, anxiety) related to environmental problems lead to behavior aimed at solving the given problem usually in cases where we are aware of an alternative that can be realized quickly and without much difficulty; and in cases that we do not consider the alternative to be disadvantageous and too costly, that is, we do not feel that in order to realize it we should give up too many benefits.

These conditions are often not fulfilled. The too costly or too slow realization of alternatives is particularly true, for instance, for global environmental problems (nearly all of them), the resolution of which would require changes in the behavior of many people and organizations, and in many social institutions (Dietz et al. 2003; Oskamp 2000; Vlek and Keren 1992). In addition, a further widespread belief of our culture has to be mentioned at this point. According to this belief, with regard to material goods, more is always better

than less. Therefore, economic growth per se is good and necessary, and the more we consume the happier we become. Since the remedy of environmental problems would often require the curbing of economic growth and personal consumption, many (would) regard this as giving up benefits and pleasures.

However, we have to get rid of our negative feelings, and thus mostly unconscious defense mechanisms begin to work. That is, often we calm ourselves by putting such thoughts out of our mind (this includes both conscious suppression and unconscious repression), or by trivializing and denying environmental problems. In addition, denial might as well turn into reaction formation (Winter and Koger 2004).[16] Likewise, we can deny or trivialize human responsibility (especially our own) for environmental problems. This might be one of the possible ways to resolve the cognitive dissonance arising in consequence of the causal association between our actions and environmental problems (McDaniels et al. 1996). Hence, by the help of the above defense mechanisms we use certain types of emotion-focused coping, and our environmental concern decreases. For example, it is empirically demonstrated that the more a person believes in the necessity of economic growth, or that increase in material abundance promotes well-being, the lower his/her level of environmental concern tends to be (Dunlap and Van Liere 1984; Kilbourne et al. 2001). One of the possible explanations for this is the operation of defense mechanisms.

Possible Ways to Proceed

Obviously, this systematic summary of the factors hindering the growth of environmental concern is only a first version that can be refined later. Other kinds of classifications of the factors might also be possible, and this might result in the decrease (or increase) of the overall number of the factors. According to the above, in many cases the importance of a certain factor is empirically well-demonstrated, while in other cases the empirical support is lacking or insufficient. The latter cases seem to be more common. Hence, this paper points to the necessity of (and hopefully also stimulates) several future empirical studies that may prove or disprove the inclusion of certain factors. In these studies it would be important to separate cognitive and affective attitudes as much as possible.

Starting from the present work one of the most promising directions to proceed in would be to examine which of the above factors hinder the growth of concern in the cases of particular environmental problems, and what further factors might also be involved. The other direction that seems to be very important is the search for solution proposals: how the concern hindering effects of the certain factors can be mitigated. In the cases of some factors promising solution possibilities, some of which have even been successfully applied, can be found in the literature (see e.g. Gardner and Stern 2002; Milbrath 1995). On the other hand, some other factors still seem to be hard nuts to crack. It was not the aim of this article to explore solution possibilities, but was the main aim of it to help to find these. The barriers hindering the growth of environmental concern can be removed (or at least reduced) if we first identify precisely what the most important of these barriers are.

Endnotes

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2. I approach pro-environmental behavior from its impact and not from the intent behind it (cf. Stern 2000). That is, pro-environmental behavior here means behavior resulting in the decrease of environmental impact regardless of the intents of the actor.
3. The dependence of environmental concern on various demographic factors has been examined widely, for a review see e.g. Fransson and Gärling (1999). For the examination of the relationship between personality types and environmental attitudes see e.g. Wiseman and Bogner (2003).
4. Interestingly, the value-belief-norm theory, while dealing with cognitive and conative attitudes, neglects affective ones. Nevertheless, it sounds plausible that affects mediate between beliefs and norms.
5. I avoid the terms “underreaction” and “overreaction,” since these seem to imply that our reactions to problems (risks) have an optimal level, which can be objectively defined by someone (e.g. an expert). Assuming the existence of such a level makes no sense, for instance, because the objects threatened by risks can have different values to different people. (For example, an animal species threatened by extinction can be of great value to one person, but totally worthless to another. Therefore, the levels of risk perceived by them will also be different, but it is basically pointless to state that either of them under- or overreacts to the risk.) It is obvious, however, that there are also several factors that increase environmental concern. I do not deal with these factors in this paper, but it can be a question whether these factors are stronger altogether than those decreasing environmental concern. It is virtually impossible to give a definite answer to this question (Gardner and Stern 2002), but it does not seem to be very important because of the following reasons. The fact that the majority of environmental indicators show declining tendencies worldwide indicates clearly that we have not managed so far to give effective behavioral answers to the environmental challenge. Hence, pro-environmental behavior should be encouraged, and one way to do this is to increase environmental concern. This in turn is impeded by several barriers, and so it would be worthwhile to reduce or remove them, no matter what other factors (and to what extent) increase environmental concern.
6. For example, deforestation in the Amazon Basin alters the climate of the whole Earth (Shukla et al. 1990). Environmental refugees can also be mentioned here. These people escaping in large numbers from unfavorable environmental conditions (e.g. the scarcity of a vital nat-

ural resource) might cause social strains and even violent conflicts in the recipient countries (e.g. Homer-Dixon 1999).

7. Of course, only if we choose such contents. However, entertaining contents dominate both television and internet, thus most people choose these. (Certainly, the dominance of these contents partly derives from the fact that people prefer them.)
8. Naturally, correlation does not always mean causal relationship, but it is likely that it does in this case. However, this causal relationship can be bidirectional, which means that the increase or decrease in media attention can be the cause as well as the effect of the changes in environmental concern. (The latter may happen, for instance, when media companies conduct public opinion polls, and then shift topic emphasis according to the results of these.)
9. Nevertheless, the GCC ceased to exist in 2002 after several large, well-known companies left the coalition in the last two years of its existence acknowledging publicly the dangers of global climate change.
10. Of course, one must be careful with the generalization since the study was carried out on a small sample. It is likely, for instance, that weekly or monthly papers generally containing longer and more thorough articles than newspapers mention risks and problems more frequently. It is not very likely, however, that newspapers elsewhere in the world or the daily news on radio and television discuss problems and risks more frequently. Nevertheless, this issue needs more research.
11. Of course, beyond such beliefs there lie the basic values, the scale of value of our culture (and to an extent these beliefs also shape values). A strong value orientation and firm general beliefs can lead us to a selective search for and a selective attention towards information that confirms us. This often impedes the information incongruent to our values and general beliefs to even reach us. And even if they reach us, we are prone to simply sweep them aside, to distort them, or consider them erroneous, untrustworthy or unimportant (Sabatier and Hunter 1989; Slovic 1987).
12. Although this part of the article is mostly built on the papers of Schultz and his colleagues, it is important to mention that there exist some other remarkable approaches very similar to theirs. Clayton (2003) uses the term "environmental identity" for the belief that the natural environment is an important part of us. Opotow stresses moral inclusion, that is, the extent to which we expand the concept of justice to other people or other living organisms (e.g. Opotow 2003; Opotow and Weiss 2000). Stern and his colleagues simply talk about whether we value an object (e.g. another person or living organism) or not (e.g. Stern and Dietz 1994; Stern et al. 1995, 1999).
13. At the same time, the personal experiencing of an environmental problem (e.g. a hurricane or a flood) might also increase the denial of the occurrence of a similar future event. This happens in cases when the given risk becomes considered less controllable after the personal experiencing than it was considered before (Weinstein 1989).
14. One has to be cautious, however, when interpreting this result, because of two reasons. First, the study did not examine whether the persons having faith in future material abundance also held the view of history in question. Second, the causal relationship mentioned can also be valid in the opposite direction: the more optimistic vision might be the consequence of weak environmental concern.
15. For the sake of the example, let us disregard the fact that urban air pollution is caused not only by vehicles serving the mobility of individuals. However, this simplification is not unrealistic, since in many cities these vehicles are the main sources of air pollution.
16. Defense mechanisms are one of the most plausible explanations for the negative correlation between perceived benefit and perceived risk established many times empirically. For instance, Baird (1986) examining the risk perception related to the arsenic emissions of a smelter found that it was the persons employed in the smelter who regarded its operation the least risky in terms of human health, and they were the most certain that they would not get cancer due to the arsenic emissions of the smelter. Moreover, they were the most certain that they would not get cancer due to environmental pollution in general. (They held this point of view in spite of the fact that they were the most exposed to arsenic pollution in the examined population!) One of the most likely explanations to the above is that it was exactly those employed, whose existence depended on the smelter, who would have lost the most benefit as a result of the planned closing down of the smelter, and hence they began to deny and trivialize risks.

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