MAIE KIISEL

Problems of critical analysis of communication of environmental issues and risks

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CONTENTS

LIST OF PUBLICATIONS

This dissertation is based on original publications that are referred to in the text by their respective roman numerals as follows:

Study I ON ENVIRONMENTAL CONSCIOUSNESS by Kiisel, M. (2013). Modernisation and Development of Environmental Consciousness in Estonia: A Paradigmatic Approach, *Przestrzeń Społeczna (Social Space)*, Volume 3, Issue 1, 1–29.

Study II ON PLANNING by Kiisel, M. (2013). Local Community Participation in the Planning Process: A Case of Bounded Communicative Rationality, *European Planning Studies*, Volume 21, Issue 2, 232–250.

Study III ON RISKS by Kiisel, M., Vihalemm, T. Where Does Risk Lie? A Model of the Reception of Warning Messages. Under third review in: *Health, Risk & Society*.

Study IV ON CONSUMPTION by Kalmus, V., Keller, M., Kiisel, M. (2009). Emerging Consumer Types in a Transition Culture: Consumption Patterns of Generational and Ethnic Groups in Estonia. *Journal of Baltic Studies*, Volume 40, Issue 1, 53–74.

AUTHOR'S CONTRIBUTION

Studies I and II are objects of single authorship where the author is solely responsible for defining the research problems, conducting the research, interpreting the results and drawing conclusions.

Study III was created in cooperation between two authors with common responsibility for defining the research problems whereby the present author had a leading role in interpreting the results and drawing conclusions.

Study IV was conducted in cooperation in two other authors; my contribution to the publication consisted of an analysis and interpretation of empirical data, while the theoretical part and an overall analysis were prepared jointly with common responsibility for defining the research problems, interpreting the results and drawing conclusions.

ACKNOWLEDGMENTS

My greatest thanks go to my supervisor professor Triin Vihalemm, who has been extraordinarily patient with me. I have enjoyed many a long conversation with her, and have been especially amused by her habit of falling asleep in their course. Among other duties she even embodied Hildur Bock[1] with her taking care of my son Karlsson and locked me up in her sauna to impede me from the escapist activities that kept me from writing. She does not yet know that among other "irritations" Karlsson also spilled a cup of sugary tea on the keyboard of her computer.

I thank my co-authors professor Veronika Kalmus and senior researcher Margit Keller, and colleagues who have been even more patient than my supervisor, especially Maiu Reinhold who has done piles of paperwork because of me. I also thank Alar Suija for guiding me through technological labyrinths even in the last minute.

Several foundations financed my research, but my special gratitude goes to Environmental Investment Center that financed my research team's media inquiry (project no 190).

As most of the doctoral students know, family is an impeding factor in writing the dissertation. Therefore, my Karlsson thanks also his grandfather Mart and stepmothers Maio, Nele and Natalia for taking care of him.

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[1] See Astrid Lindgren "Karlsson on the Roof".

INTRODUCTION

Two generations have passed since the publication of Rachel Carson's alarming book *Silent Spring*. Although the problems related to the use of the pesticide DDT, raised by the book, seem to be a thing of the past, society is still concerned about environmental issues. Single environmental issues of the then world have been replaced by a new generation of complex issues, the addressing of which may have unexpected environmental impacts and pose uncharted risks. On the other hand, the environment has become a hot topic in all aspects of life: environmental issues have become a staple feature in media reports; the legal space is regulated by numerous environmental rules and regulations; being 'eco' has become a mainstream fashion trend and natural disasters are the favourite plot device for the Hollywood film industry. And yet, United Nations Environment Program (UNEP) states in its 2012 report issued on the eve of the Rio+20 conference (Global...: 1, 3) that the "world remains on an unsustainable track despite hundreds of internationally agreed goals and objectives. […] Scientific evidence shows that Earth systems are being pushed towards their biophysical limits, with evidence that these limits are close and have in some cases been exceeded."

Environmental history is written and major political agreements have been concluded at international conferences: at the Stockholm, Rio de Janeiro, Johannesburg conferences etc. Today, no more major political agreements, such as the Kyoto climate treaty, are reached (neither have any tangible results been achieved, according to the above-mentioned UN report). After the complete failure of the UN climate summit in Copenhagen in 2009, the public debate over global warming has adopted an increasingly critical attitude, the impacts of climate change are being marginalised and the Cancun conference, organised as a 'correction of mistakes' made in Copenhagen, did not even make the news.

Environmental issues have become extremely complex – researchers and scientists are groping in the dark, touching and feeling the different parts of the 'elephant', offering contradictory micro-political solutions. Cumbersome economic and political solutions, such as the EU emissions trading scheme or the ban on incandescent light bulbs, create confusion and substituting activities, such as renaming filament bulbs 'heating elements', without any tangible results to show for the effort. On the one hand, consumption as a reason behind environmental issues is frowned upon; on the other hand, it is stressed that we need economic growth (which is based on consumption) and natural resources are recklessly exploited in the name of that goal.

In general, it is claimed that these tendencies are the typical characteristics of late modernity. Although the basic operations of modern institutions have not changed, the institutions are opposed to the side effects of their deeds, as the increasing proportion of risk publics demand constant action in subjecting those. The difficulty here, especially in the case of environmental problems, lies in the fact that environmental risks are caused by the main operations of society,

which is the reason why these operations cannot be institutionalised as problems. Therefore, the modernity radicalises (Beck 1997, Giddens 1997). In his book "World at Risk" Beck (2009) emphasises that social institutions are more and more dependent on the staging in public of these risks, and this disturbs the tradition of the modern (hierarchical and scientific) treatment of risks and problems. It is also noteworthy that the public expansion of risks and problems is no longer lead by protest groups in modern society, but also by science, industry and politics themselves. Hopeless intertwining of risk definitions expands the number or risk publics and even thorough confutation of every separate risk would only enforce the interaction of the institutionalisation of risks.

The fall of the Soviet Union, which is the historical point of departure of this thesis, is often mentioned as an important milestone of modernisation, the beginning of late or reflexive modernity. However, the nature of Soviet modernity has received little attention (there are also views that 'Soviet' and 'modernity' do not fit together at all). The institutions of a society emanate from its cultural tradition. Therefore, different cultures respond to the challenge of modernisation in different ways. The peculiarities of the modernisation of the western part of the former Soviet Union (including Estonia) and its impacts on environmental communication are one of the subjects of this thesis.

Estonia has quickly developed in the modernisation of its environmental politics, especially in the course of the accession to the European Union. Still, unexpected setbacks in environmental use and management are not unknown in Estonia. Attempts are made to revive the oil shale industry, which has withered as a result of the structural changes that occurred after Estonia regained its independence, despite the expiry of the 'grace period' offered by CO_2 emissions trading. Tentative suggestions have been made to start phosphorite mining, which only a quarter of a century ago was a catalyst for the so-called 'phosphorite war'. Despite increasing pollution levels and decreasing fish resources in the Baltic Sea, all attempts to regulate agriculture, transit and fishing industries – the economic levers behind the decline – have failed. This raises a question, whether Estonia suffers from insufficient modernisation (insufficient acknowledgement of problems) or is already hindered by excessive reflexive modernisation (enforced enlightenment in Beck's terms).

As the opening examples of the introduction warn about disjunction between excessive reflexivity and improvements in natural environment, this thesis, which concerns itself with environmental communication, has no option but to take a critical stand.

Unlike the studies into environmental awareness and risk communication that treat communication *a priori* as a positive phenomenon, which should improve the well-being of people and society by increasing and developing knowledge, my dissertation is written in a critical paradigm, seeking to interpret the 'given' social institutions, social relations and legitimate meanings, and asks (Cox 1981): How did they emerge and where are they headed? Why do we

consider something to be a serious environmental issue? Which criteria do we use to identify risks and assess their potential realisation? How is public opinion formed around what to consider adequate and appropriate solutions? Why can we not achieve a satisfactory outcome? Which conditions in a late modern society make it possible to debate over environmental issues and enable its continuation?

Beck (2009) claims that global risk designs completely a new kind of public spheres, that, contrary to Habermasian voluntariness-based public sphere, are based on the enforced opposition to risk, being also emotionally and existentially defined. These public spheres are joined by public accusation and denouncement, formed of selectivity and also misunderstanding. However, Habermas stresses this phenomenon already in 1975 in "Legitimation Crisis", but centrally claims that it is the way society opposes individuals that will start undermining the ability to find solutions to socially defined problems. Beck's companion in the development of ideas about individualisation and risk, Anthony Giddens, has in his earlier work on agency and structure ("The Constitution of Society" 1984), emphasised quite the contrary. For him, those are only individuals and their actions, which mutually shape the society through forming institutions.

Similarly to Beck (2002), Giddens (1997) claims that individuals in the present day complex society acquire a compulsion to lead a life of their own. This has an enormous effect on social structures and the institutions that uphold it. Still, there remains the question of how the social institutions still stand, as the practices of individuals depart in such a high degree. As the complexity grows, in order to survive, individuals cannot invent the rules and resources on their own as this puts them in jeopardy of slipping in decision-making. The complexity must still retreat to a certain degree of simplification of practices that enable individuals to understand each other in the context of such complexity. Complexity must enforce new institutions, to enable individuals to define their life courses in relation to others, and build their personal routines irrespective of the fall of old institutions (which as a course is doubtful to occur). As the function of the routine is to ease the anxiety about uncertainty, the lack of stable signs about anxiety in society shows that the routines still exist (be it compulsion, if nothing else). Therefore, the increase in complexity must also increase some kind of common mechanisms of reflexivity, to guarantee mutual understanding between individuals. As the theory of structuration does not explain this problem I have turned to the critical system-based approaches. The thesis is theoretically inspired by Habermas' theory of communicative action, which drags between lifeworld[2] and the system, and

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[2]   'Lifeworld' is a definition used in the theoretical chapter. According to Jürgen Habermas (1984, 1989), lifeworld is a set of culturally ingrained and socially integrated meanings, opinions and skills. Comparing other approaches to lifeworld, Habermas' approach pays more attention to the linguistic shaping of the meanings of the lifeworld.

Luhmann's constructivist approach to social system, which centrally addresses complexity. The complexity is firstly a matter of the system, not the agent. The individual cannot be informed and feel alarmed about all kind of risks; therefore the complexity may stand invisible to them.

Therefore, the complexity will mask the need for the individuals to look over the historical paths of dependency that keep the society on an unsustainable road, and increase the speed of the exploitation of its resources. The complexity will also distract environmentally alarmed individuals, providing them with seemingly outstanding solutions but factually with the accumulation of instrumentality.

The objective of the thesis is to identify the conditions that are required to avoid incrementalisation[3] of environmental communication through its reproduction process, so that individuals could find better solutions to environmental issues and risks at both personal and collective levels.

I will look for the reasons in the second, theoretical chapter of the thesis, by following the ideas of the three above-named authors – Luhmann, Habermas and Giddens. Like the authors, I was inspired by macro level theories because I agree that no phenomenon is meaningful unless it is related to society as a whole, which connects different phenomena with each other. The theoretical chapter discusses the ideas of the phenomenologist Jürgen Habermas, radical constructivist Niklas Luhmann, and Anthony Giddens, a critic of structuralism and historical materialism. Their ideas serve as a source of inspiration both for looking for theoretical solutions to complexity and for interpreting relevant empirical evidence in the context of a post-Soviet country such as Estonia. Jürgen Habermas fascinates us with his approach to social crisis as something created by society's inability to reproduce itself; his theory of communicative action contrasts individual lifeworld with the system and stresses the importance of linguistic communication in shaping the shared knowledge of people. Niklas Luhmann's approach to social systems enables us to specify and justify Habermas' assertion that no social crisis is manifested in a way that people perceive it. Luhmann enables us to understand why some decisions seem to be more 'right' and are accepted more easily and why decisions change over time and in different contexts. Anthony Giddens is not referred to in the articles that form the body of the thesis, but he has inspired me with his approach to individuals' routine practices and their side effects by incorporating reification, the human body and sub-consciousness in the social theory as constraining factors of social embeddedness and factors under constraint. His arguments are interpreted and discussed in the cover article of the thesis. Interpretation of the ideas of these authors in the field of environmental communication creates an interesting set of contradictions that are discussed in the cover article:

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[3] 'Incrementality' means accumulation and fragmentation and therefore, stress on reflection. Incrementality is discussed in the article ON PLANNING, in the part dealing with the paradigm of communicative planning.

1. the development of society in phases (Habermas, Giddens) *versus* its uniform and logical radicalisation as a communication system (Luhmann)
2. linguistic expression as the medium for the communication of meanings (Habermas) *versus* language as just one of the meaningful practices (Giddens) *versus* language as a medium of communication which is not directly related to meaning (Luhmann)
3. the human body and its routine practices as the factors structuring society (Giddens) *versus* 'reification' of social theory as an impossible task (Luhmann)
4. communication as the operation of a social system (Luhmann) *versus* interhuman activity (Habermas, Giddens)[4].

In discussing these theoretical contradictions I have used reasoning and selected illustrative examples from the articles that reflect my empirical investigations of the field of environmental communication. However, in order to present the original empirical findings that have shaped my theoretical search in compact and integrated format, I have composed the first chapter of the thesis, which raises the same problems from the empirical point of view. In both chapters, the general logic of discussion proceeds from the level of system to the level of lifeworld based on the common premises and is bounded around two main research questions that are opened up and explained below.

Based on these social-theoretical books and essays I formulate the premises that the cover article of my dissertation follows. These premises serve as a basis for analysing the communication of environmental issues and they find more clarification in the second chapter of the thesis:

The environment can be given meaning only through communication be-cause neither man nor society has immediate understanding of the intrinsic value of nature. However, the fact that the natural environment or

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[4] In the cover article of the thesis I focus mainly on the following pieces:
by Anthony Giddens:
    'The Constitution of Society: Outline of the Theory of Structuration.' (1984)
    'Living in a post-traditional society' in: Reflexive modernization: Politics, tradition and aesthetics in the modern social order (1994)
by Jürgen Habermas:
    'Legitimation crisis' (1975)
    'The Theory of Communicative Action. Volume 1: Reason and the Rationalization of Society' (1981)
    'The Theory of Communicative Action. Volume 2: Lifeworld and System: A Critique of Functionalist Reason' (1981)
by Niklas Luhmann:
    'Ecological communication' (1989)
    'Risk: A Sociological Theory' (1993)
    'Social Systems' (1995)

environmental issues are not interpreted in the course of interaction does not mean that individuals do no relate to the environment.

It should be taken into consideration that communication couldn't describe the environment holistically, but only by differentiation of its selected aspects. For example, the meaning of environmental pollution is conveyed through understanding that non-pollution is also possible.

The diverse forms in which the natural environment presents itself to an individual are related to the conditions of the structural reproduction of society. In a simple system – a primitive and traditional society – the perception of the environment is more direct than in a modern society where the environment is perceived through science, consumer culture, mass media or even laws and regulations. A modern society is characterised by inconsistent definitions of nature provided by different institutions and all efforts to remove such inconsistencies only facilitate further fragmentation.

Meaning-creating environmental communication between individuals is possible only if interaction between individuals is exposed to institutional rules. Without exposure to scientific, business and political or administrative institutions, an individual would not be able to make conscious decisions, for example about saving energy. The exposure to institutions stimulates individuals' intrinsic need for giving a meaning to any new situation (e.g. to formulate new risks) but also enables society to address the anxiety caused by the perception of obscurity and contradictions. The forms of the socialisation of individuals' anxiety about the environment cannot be used to eradicate the anxiety and environmental risks; they can only be directed, as 'communication topics', to the reproduction processes of society as a social system. Modernity, however, creates situations where individuals are set in contradistinction to their own demands and those of others.

Emanating from these premises I focus in my analysis on the social context of the perception of environment and environmental risks, as individual can perceive and act with regard to risks and problems only under structural conditions, although the individual might not acknowledge these conditions.

The discourse of the research into risk perception has indeed shifted from technical and rational risk definitions to social ones, i.e. risks have no inherent definition, and they are imagined, construed and established in social communication (Van Loon 2002; Kahan et al 2011; Aven & Renn 2009; Boholm & Corvellec 2011). However in the research into environmental consciousness, on the contrary, the focus has centrally been centred on behaviour change, emphasising individual determinants, not the context. The approach to environmental consciousness as a manifest discourse or the result of structural conditions has found much less attention in scientific literature (e.g Rannikko 1996, Leiserowitz & Fernandez 2007, Wielewska & Sikorska 2007). My approach to both research fields has an emphasis on the individual's positioning in relation to social structure.

The research questions of the present thesis approach the issue of incrementalisation from both sides – the agent and the structure. The research questions of my thesis are, firstly:

Why doesn't the institutionalisation of environmental issues in complex societies offer solutions without rebound effects?

Two of the articles of my thesis, the article ON ENVIRONMENTAL CONSCIOUSNESS (I) in particular, and the article ON PLANNING (II), to a certain extent, both empirically describe communication of environmental issues. The analysis and conclusions aim to generalise upon very different original and secondary data, to describe the dynamics of communication around environment and the factors that have shaped it in the example of the Estonian modernisation process over the past 25 years. The articles confirm the existence of changes that are absent in late modernity. Present day Estonia is characterised by the decreasing direct contact with nature and increasing level of mediation of environmental issues, the fragmentation of the solutions of environmental issues between various institutions and domains of power (e.g. legal regulation, development plans and policy programmes, research and development projects etc.), growing acknowledgement among the members of society about unknown side-effects of the industrial use of natural resources and the attempts to manage the associated risks (e.g. food safety, industrial pollution, addressing the scarcity of resources). The article ON ENVIRON-MENTAL CONSCIOUSNESS (I) analyses Estonian modernisation processes through the example of environmental consciousness. All modernisation stages (early, simple, late) have found respective equivalents in the paradigms of environmental consciousness by looking at the activities of different institutions carrying environmental consciousness along the temporal-spatial axis from the end of the Soviet period until the second decade of Estonia's continuing integration with the rest of the European Union. The article ON PLANNING (II) looks in detail into one of the paradigms of environmental consciousness (the social paradigm) and its legitimising and reproducing communication. The article analyses a case involving the preparation of a development plan for the exploitation of natural resources and its opposition by the local community.

My second research question is:

Why are individuals unable to converge around environmental issues?

On the basis of the articles ON RISKS (III) and ON CONSUMPTION (IV), and the article ON PLANNING (II), to an extent, I discuss whether the anxiety[5] and anguish of the lifeworld have a potential to reduce the complexity, fragmentation and incrementalisation of (late) modernity. These articles concern the interpretation of environmental risks and issues at the level of individuals and their relation with explanations and solutions proposed at the institutional

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[5]   Anxiety is for Luhmann (1993: 127) a theme, whose role is to alleviate the contradiction between norm and deviation. He claims that there is a new type of morality, whose aim is not to avoid deviations, but the anxiety itself.

level in various processes of participation (exposure to risk and pollution, everyday consumption of goods and services, a community protest against regional industrial development projects). The analysis reveals various patterns of how members of society relate to systematically (re)produced environmental risks. It appears from the analysis that the assertions of theorists like Beck (1986/92) concerning the redistributing power of a risk are valid, although individuals may not be aware of the risk and be unable to perceive it in their everyday life. Although the risk that has seemingly an equal potential to harm very different individuals, it still has various degrees of potential to alarm and test trust. Based on quantitative and empirical data I found, as was to be expected, that the exposure to different risks and respective practices is related to individual's positioning with regard to social structure.

As the articles of the thesis are empirical and the contact of these with the theoretical research questions is not direct and self-evident, I need to generalise first the empirical conclusions based on the articles in order to link those to the theoretical concepts. Therefore, in the first chapter of this dissertation, I will analyse the development of communication of environmental issues and risks in Estonia over the past 25 years and highlight the characteristics related to modernisation. Compared with Western Europe, which has developed slowly over a long period of time, Estonian public environmental communication has developed rapidly, which allows us to analyse in a greater detail the dynamics of the development of modernity. Therefore, analysis is also easier than in the case of Western Europe as the trends are more prominent. The Soviet 'heritage' offers a researcher an opportunity to look at the modernity of the 'capitalist society' from the side. The Estonian re-orientation practices enable us to see the dynamics and impact of the conditions shaping public communication. A distinct case enables a researcher to explore whether the difficulties in solving the problems related to public communication of environmental issues are caused by 'slow development' (inability to catch up with the West) or by inevitable (or avoidable) obstacles occurring in the dynamics of modernity.

Building on the conclusions of the empirical analysis, I will turn to the theoretical interpretation of the empirical material.

In the second chapter, I will seek answers to the theoretical questions, based on macro-level social theories – the system and structuration theories.

In the conclusion I integrate the theoretical problems and empirical analysis of the Estonian context.

The objective of the thesis and research questions

The objective of the study is **to identify the conditions that should be created in order to prevent the incrementalisation of environmental communication through reproduction and to enable individuals to find better solutions to environmental issues and risks at both personal and collective levels.**

To identify these conditions I answer first of all two theoretical questions (in Chapter 2)

I. Why doesn't the institutionalisation of environmental issues in complex societies offer solutions without rebound effects?

II. Why are individuals unable to converge around environmental issues?

Anticipating the lack of contextualisation of the theoretical discussion, I will introduce empirical evidence, by focussing on the changes in the communication of environment and risk in Estonia over the past 25 years and seek answers to the following questions (in Chapter 1):

1. What are the dynamics of the public communication of environmental issues and risks used in Estonia over the past 25 years? (Studies I, II, IV)
2. Which economic, political, historical and cultural factors shape the communication of environmental issues and risks? How did the modernisation of Estonia within the Soviet Union and as an EU member state influence the communication of environmental issues? (Studies I, III, IV)
3. How have the opportunities for individuals to converge around and discuss environmental issues and risks and their possible solutions changed over the past 25 years? What challenges are the participants in the discussions facing due to those changes? (Studies I–IV)
4. Why can't institutions meet individuals' expectations regarding environmental issues and risks, and vice versa, why is it so difficult for individuals to communicate their expectations and anxiety in a way that is acceptable to and taken into account by institutions? (Studies II, III)
5. What problems are caused by the fact that there are fewer shared experiences (experiences are fragmented in modernity) and that solutions are sought at a more abstract, linguistic level? (Studies II, III)
6. Why is a broad-based discussion on the environment missing in society, although it is often clamoured for, and unsolved issues increase the general level of anxiety? Which conditions can create a common concern, as occurred during the Phosphorite War[6]?

Choice of material and research methods

Anxiety over the environment is expressed in various mechanisms of the functioning of society – in consumption decisions, in public decision-making concerning the use of the environment, in acknowledging environmental issues and increasingly, in receiving institutional messages that shape public communication (through various media channels). There are more but this dissertation focuses on the nodal points of the expression of anxiety. I will explore

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[6]   The Phosphorite War was an environmental campaign in 1988–1992, a catalyst that led to many political and social changes and eventually, to Estonia regaining its independence.

communication of environmental issues and risks in Estonia in its different forms:

Political documents (the article ON ENVIRONMENTAL CONSCIOUS-NESS, I; the article ON PLANNING, II): This thesis analyses the formation of environmental development plans and legislation over time. Background information about how the implementation of a political declaration may differ from the initial objective was gathered by interviewing experienced environmental protection specialists, analysing the reports issued by the National Audit Office and obviously, by observing the implementation of legislation/development plans – I have been involved in the activities of different environmental organisations for more than a decade. In greater detail, I have analysed the preparation of one particular development plan – The National Development Plan for the Use of Oil Shale, 2008–2015. I conducted focus group discussions with community members opposing the extraction of oil shale; spoke to the representatives of different stakeholders (officials of the Ministry of the Environment, the Secretary General, environmental protection specialists, representatives of citizens' associations, rural municipality mayors, researchers etc.); participated as an observer in meetings I had been granted access to; analysed the recordings and minutes of the meetings I was denied access to. I have also analysed the communication between different parties, and representation in the media, which, is not, however, discussed in this paper. The extensive analysis served as a basis for the article ON PLANNING (II), in which I contextualised the opinions of local people about the strategy development process. The article ON ENVIRONMENTAL CONSCIOUSNESS (I) discusses, inter alia, the changes in the programmes of political parties over a period, which includes several elections. In 2005, I analysed the programs of political parties prior to local elections, using a chart of environmental consciousness paradigms, which I had developed myself[7]. In 2011, a student under my supervision, Kristjan Gold, also analysed the programmes of political parties in the eve of parliamentary elections, using the classification of value orientations developed by Lauristin & Firsov (1987) in a study on the use of the media, conducted in 1983. I have used the method also myself in a media analysis (Kiisel et al 2011), see: journalistic approaches.

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[7]   The paradigms of environmental consciousness, operationalised in the article ON ENVIRONMENTAL CONSCIOUSNESS (I), are inspired, firstly, by Ulrich Beck's approach to modernisation, and secondly, by environmental ethics. The first has helped me to ground the ideas that I had about the changes in environmental consciousness, the second loaned me the names for the paradigms. I did not find it useful to focus on already existing approaches to paradigms of e.g environmental ethics, as these traditionally begin with the anthropocentric/social paradigm. In the theoretical chapter I posit that a human being cannot be anthropocentric or ecological, as these concepts are always abstractions that emanate from the particular point of view, having no groundedness in the real world, neither in humans, nor in nature.

Journalistic approaches, media representation (the article ON ENVI-RONMENTAL CONSCIOUSNESS, I): in 2010 and 2011, my research group and I conducted a media study in which we compared the representation of the environment and nature in the media. I compared the journalistic content created in 1995, 2000, 2005 and 2010. For the research material national dailies were chosen, and the copies for analysis were selected on the same basis for each year under investigation (every week day and month was presented). The object of the study was the whole paper, from which the situations that described in one or the other way the relationship between humans and nature were differentiated. Every unit of analysis was observed by two researchers in order to avoid excess subjectivity. The study followed the example of the above-mentioned media study of 1983 (Lauristin & Firsov 1987). The methodology overlapped partially and therefore, I could include years 1982 and 1983 in the comparison. In my opinion, what are especially interesting are the changes in value orientations represented in media texts. The starting point here was that each text situation (there could be several for one article) has its agenda, be it latent or evident; the value orientation is a viewpoint or angle according to which the environment or nature is interpreted by the author. There were 15 different value orientations: ecological, scientific, ethical, aesthetic, cultural-historical, ideological, biological, consumerist, social, economic-productive, technological, institutional-administrative, juridical, politics oriented (separately national and foreign-global).

Instrumental danger warnings (the article ON RISKS, III): While risk awareness is analysed mainly by using quantitative research, and the focus is mainly on risks, whose effect does not manifest itself immediately and there-fore, does not require immediate action (see literature research of Hawkes & Rowe 2008, Chryssochoidis et al. 2009), the empirical focus group discussions, conducted by my colleagues in different regions of Estonia, used a different approach. The respondents in the focus groups were instructed to discuss various messages warning against real and serious risks, notwithstanding the fact that the focus group method can hardly imitate real life – in a real dangerous situation people are often surrounded by strangers whose demo-graphic background and awareness of risks can be very different. The analysis focused on how different people can find solutions and to what extent this process is supported by collective interaction. The interviews were coded using a scheme developed after initial reading. Two basic categories were used in coding: 1) perception of the acute risk message and 2) positioning of oneself in relation to previous experience, communication networks and the decisive structures of the social system. I have also studied the relation of individuals to risks within the research project 'Me. The World. The Media' (see the next paragraph).

Consumption and other practices (the article ON CONSUMPTION, IV): I have analysed the practices used by individuals on the basis of the representative quantitative social research 'Me. The World. The Media',

conducted by the researchers at the Institute of Journalism, Communication and Information Sciences, University of Tartu. The analysis of the article ON CONSUMPTION (IV) was prepared in cooperation with my colleagues. I have compared the single variables from 2002, 2005, 2008 and 2011, but also created indices, which I have also used in the article ON ENVIRONMENTAL CONSCIOUSNESS (I).

The following methods of data collection and analysis were used in the empirical studies (Table 1):

Table 1. Research methods of the articles

The articles on:	Content analysis of media texts	Standardised questionnaire	Focus group	Ethnographic approach, document analysis, observation
ENVIRONMENTAL CONSCIOUSNESS	X	X		X
PLANNING			X	
RISKS			X	X
CONSUMPTION		X		

Each method is described in detail in the relevant part of each publication.

In addition, I have used the findings of a cluster analysis based on the study 'Me. The World. The Media' (2002–2011). The overview of the principles of the composition of the main indices and clusters will be found from the appendices. I have also used media analysis 'Environmental issues in print media' conducted with the financial support of the Environmental Investment Centre (Kiisel et al. 2011).

I. COMMUNICATION OF ENVIRONMENTAL ISSUES AND RISKS IN ESTONIA, AND CHANGES IN AND FACTORS AFFECTING COMMUNICATION

Below, I will give an overview of the empirical conclusions drawn from the publications used in the dissertation, broken down by research questions.

What are the dynamics of the public communication of environmental issues and risks used in Estonia over the past 25 years?

As explained in the introduction, this thesis focuses centrally on the social context of the public communication of environmental issues and risks. Therefore, very different factors are brought together in one picture. The article ON ENVIRONMENTAL CONSCIOUSNESS (I) focuses on the development of Estonian environmental policies, changes in the environmental media and media representation of environmental issues, and the development of citizens' action and consumption behaviours. The articles ON RISKS (III) and PLANNING (II) discuss the practices of interaction between institutions and individuals; the article ON CONSUMPTION (IV) focuses on the replacement of the nature relations peculiar to the natural economy by modern environmental consumption practices.

Naturally, these factors that shape public communication do not function alone. They are in constant interaction with each other: a shaping factor becomes a factor being shaped. In Giddens's terms, changes in social structure enforce individual reactions, which in turn shape the social structure of society. I will look at the development of the communication-shaping factors in terms of the dynamics of the development of modernity. I will identify, from the perspective of environmental issues, the social dynamics and learning processes characteristic of modernity, which can be followed with the help of empirical data.

In addition to modernisation, the second important macro-level change that has shaped public communication about the environment in Estonia is the change from Soviet modernity to the modernity of the West. The fall of the Soviet Union is often mentioned as an important milestone of modernisation, the beginning of reflexive modernity for the Western world. The peculiarities and paths of the modernisation of (the western part of) the former Soviet Union are not, however, much discussed academically.

In order to visualise the dynamics of modernisation in the context of environmental issues, I have formulated in the article ON ENVIRONMENTAL CONSCIOUSNESS (I) three paradigms of environmental consciousness, influenced by Ulrich Beck and modernisation theories in general. The paradigms are labelled according to widespread concepts of environmental

ethics and philosophy (social/anthropocentric, environmental and ecological). However, my approach to these terms expresses my dissatisfaction with the general use of these concepts in environmental philosophy. In my view, the dynamics of environmental consciousness are not about the change from anthropocentrism to ecocentrism, as both of them assume the defining of nature, which can only be done through anthropocentric construction. We can't escape the fact that we are human. The approach of Luhmann (see Chapter 2) helps to explain this more clearly. My approach to these widespread concepts is tied to the process of how "environment" is defined, and I use three stages in this process. The elements of what to consider important in these dynamics are derived from the stages of modernisation: early, simple and late modernity. All of these are modern paradigms that observe nature from a distance (otherness), i.e. they are opposed to the imaginary "traditional" approach according to which natural processes are the immediate drivers of the functioning mechanisms of the lifeworld.

I have followed the dynamics of the modernisation of environmental consciousness through several decades. The focal point in the development of the paradigms is formed by the ways of reflecting on the environment. An outlined overview of the paradigms is provided in Table 1 of the article ON ENVIRONMENTAL CONSCIOUSNESS. Below is a short summary of those paradigms.

The social, or anthropocentric, paradigm corresponds to the general world-view of the early industrial society, which defines nature as a resource. A culturally external perception of the environment makes it difficult to acknowledge problems. If acknowledged, environmental problems are perceived as contradictions to purity and order, or to personal well-being. Actualised environmental problems are interpreted as occasional threats (accidents happen). Environment-related practices are not defined as environmentally alarmed; they are pragmatically shaped routines.

The environmental paradigm gathers strength in simple modernity, the developed industrial society. Although nature is still treated as a resource, it is also seen as a culture theme: frequent coping with environmental problems has brought the environment back to the culturally internal. Therefore, environmentalism and environmentally acknowledged practices are perceived as social norms. This world-view represents trust in science, technology, the liberal economy and sustainable development. According to the environmental paradigm, environmental endangerment and threats from nature originate from the insufficient adjustment of technology (for example, insufficient information distribution) and *excessive* exploitation of natural resources.

The ecological paradigm arises in late modernity, the risk society. This paradigm originates from the cognition of ambivalence in risk and "healing" messages. The ambiguity of the interpretation of environmental problems endangers the rationality of the environmental paradigm and trust in the liberal economy. As the environmental paradigm justifies action through trust in expert

systems and sub-policies, the ecological paradigm adjusts individualised risk strategies to given circumstances. This might result in a constant struggle to be aware of a risk situation, in re-invention of the traditional lifestyle, in protest against institutionalisation, or in mourning (acknowledgement of a personal lack of ability). Therefore, the link between certain practices and environmental concerns blurs in late modernity.
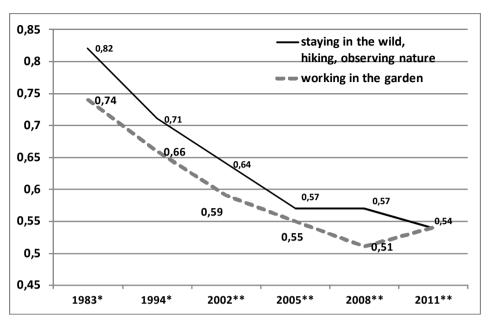
The alternation of the paradigms in different time periods is illustrated in Table 1, in the example of different factors that shape environmental consciousness. The table also reveals the peculiarities of Soviet modernity. While the institutional level shifted from the social to the environmental paradigm, individuals and their ways of converging were more similar to the ecological paradigm (although other paradigms were also represented). Moreover, the movement from the social to the ecological paradigm was not linear: there were also some setbacks (the period of the Phosphorite War). This emphasises the contextual design of reflection and reflexivity: the Estonian experience reveals that there was not a sequential development from the anthropocentric to the ecocentric world-view.

In the context of this paper, the ecological paradigm does not indicate the formation of an extra environmentally friendly form of society. It means that making ecological processes objects of communication created numerous possibilities for interpretation. Some of these interpretations were undoubtedly hidden or intrinsic; some constituted objects of social discussion and others, despite being causes of social anxiety, couldn't be discussed publicly (see Chapter 2). The inertness of the social paradigm at the institutional level is expressed in the latter. This does not mean there was blatant hostility of the institutions towards the environment but merely that the institutional reflection had its own limits of development. The development of institutional reflection requires human and financial resources and, more importantly, time. These are the resources that Estonia has lacked in its rapid development.

Other reasons for nature and the environment becoming objects of increasingly diverse communication are urbanisation and economic development. Immediate exposure to nature and the practices of the natural economy are no longer prevalent and, therefore, the reproduction of nature occurs through communication (reproduction in the media, marketing communication and participation). A significant decline in the two main nature-related practices is illustrated in Figure 1. In the case of gardening, the declining trend has clearly stopped: it seems that gardening as a part of consumption culture is making a comeback. Today, gardening is not just about planting vegetables and phloxes. It is a diverse activity affected by fashion, marketing, science, personal taste and changing lifestyles.

Table 2. Formation of environmental consciousness from the 1980s to the present day

Time period	The meaning of nature and the environment	Environmental practices	Media	Public communication and participation	Environmental policies	Paradigms of environmental consciousness
21st century – consequences of late modernity	concern about *extra* abuse of nature; nature as a threat to human beings	diversity of practices: reflexive consumption, normative behaviour, risk calculation, re-invention of traditional habits, acknowledged indifference, protest	segmentation of media and their audience, environmental concern has returned, but reflexivity is limited by thematic segments, instrumental and consumerist views gather strength instead of humanitarian views, localisation of media content, decrease in political discussion	divergence of information and participation needs between institutional and individual levels, high segmentation and impingement of discussions	on request of the EU, legitimation of new regulations, change of practices within the economy and individuals, rise in instrumental attention to the environment in policies	intertwining of different outcomes of environmental concern, signs of the ecological paradigm at the level of the individual, rise of environmental paradigm rhetoric above the social paradigm in system action
1990s: re-orientation to economic rationality as a warrant of Western modernity	environment as a resource	import of Western consumer practices as a means of self-expression, normative behaviour	environmental information is random and superficial, environmental problems are a matter of Soviet pollution, and later human greed; decrease in consumption of environmental media	demand and supply of environment-related information against the background of society	environmental regulations are not legitimate and business takes advantage of this, political environmentalism has vanished	social paradigm (incubation period of imported environmental paradigm at the level of individuals)
The end of the 1980s: "phosphorite spring": opposition to Soviet modernity	humans are responsible for nature's well-being, nature as a national entity	traditional nature-related practices, active participation in environmental-national movement	critical, reflective discussion of environmental matters in mass media, united national public, taking part in the global wave of environmental concern	public request to publicise environment-related information and decisions	nature conservation movement was realised in national-political awakening (turn to environmentalism)	short-lived system-critical ecological paradigm, vanishes quickly after the collapse of the Soviet system
1980s: Soviet industrialism	environment as a resource, environment as a matter of cleanliness, purity	normative and traditional practices – not acknowledged as pro-environmental	nature as a compensatory and harmless subject in media – at the same time less censored, readership of environmental journals was remarkably high	information hidden or censored, decisions made by industry	nature conservation had secondary importance in politics, a cover for the national movement	prevailing social paradigm

Figure 1. Decrease in nature-related practices 1983–2011 Estonian population (* answers: "regularly" + "often" on a five-point scale; ** answers: "often" + "sometimes" on a four-point scale) (Lauristin and Firsov 1987, Kaasik et al 1996, Me. The World. The Media 2002–2011)

The best overview of public communication and its pragmatic formation is provided by how the media deal with nature. The media study referred to in the article ON ENVIRONMENTAL CONSCIOUSNESS (I) highlights the changes in the communication of nature and environmental issues, broken down by the time periods also covered by this dissertation (other factors are discussed under the subsequent question). Nowadays, it is common that environmental acts are rationalised through institutional communication rather than through independent observation of the environment. This has resulted in a rapid fragmentation of the communication of environmental issues. The communication of environmental issues as a whole has become more complex, although communication "occurs" more often.

For example, the late 1980s, which are described as a globally restless and reflective period characterised by major global political decisions (including those concerning sustainable development), also constituted a pioneering period in public communication, a phenomenon that has not recurred since. The period of regaining independence had some features of the ecological paradigm peculiar to late modernity. After 1995, the political (and also legal) approach to the environment decreased significantly and was replaced by sub-political approaches – technical and economic – which did not ask where the problem was and what should be done to solve it, but how to implement the decisions already taken (see Beck 1986/92). All too often the problem lay in (the lack of)

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regulations, not in their environmental protection effect. Therefore, the public communication of the 1990s was characterised by the social paradigm, which in my analysis is linked to early modernity. But it is emphasised in my analysis that the developing sub-politics was not based on the politics that had been reflected within the Estonian "public spheres", but imposed top down by the EU without local reflection or the ability to modify it. There was little foundation of sub-politics in the lifeworld of individuals. Therefore, the practice of environmental politics that was concerned with the translation of Western procedures was blind to lifeworld concerns and communication.

In parallel with the increasing implementation of environmental restrictions after the legal vacuum of the nineties, the economy began seeking new outputs in nature, disguising its requirements as the demands of consumers. In media, the rise of the consumerist world-view (expressing the prerogative of humans regarding natural resources) and the decline in ethical, ideological, aesthetic and cultural-historical viewpoints that started in the late 1990s were the major trends that characterised the long-term changes in the attitude towards nature. Arguments for not defining the environment according to economic purposes were more and more de-legitimised. Figure 4 in the article ON ENVIRON-MENTAL CONSCIOUSNESS (I) illustrates the major changes in the attitudes towards nature in national dailies. As the concern about the environment among individuals had not declined, especially regarding Estonian forests, which were massively harvested for timber that was exported to the West, the decrease in public attention can be explained by structural conditions which did not let the concern of individuals coalesce into public pressure.

The 1980s were characterised by a strong humanitarian approach towards nature, which is rather surprising considering the inhuman nature of the socialist system. A society that had an active relationship with nature, yet whose institutional practices did not admit the existence of environmental issues (the social paradigm) still treated nature from a humanitarian point of view, which opened and reiterated the otherwise inherent relationship with nature and the ethical tradition. The fact that Soviet society was less complex, i.e. it did not allow asking specific questions that would have raised the level of complexity, may have played a role here. But it is possible that the humanitarian viewpoint was triggered as a shared opposition to the inhuman practices of Soviet modernity.

The growing anxiety at the end of the 1980s raised ecological and scientific (as well as humanitarian) questions. The scientific arena became intertwined with a clear ideological viewpoint: that environmental protection was indispensable. This wave of anxiety was accompanied by institutional confusion and the relaxation of rules. But in a country that had regained its independence, i.e. a society that had been rejuvenated through the reduction of complexity, the importance of nature as an object of discussion was decreased because attention was focused on the rebuilding of institutions. During that period, the expression of instrumental and consumerist viewpoints increased in the media (similarly to

the beginning of early modern society, the exploitation of the environment ensured the economic growth required for the dynamics of society).

The media analysis of the article ON ENVIRONMENTAL CON-SCIOUSNESS reveals that in a highly developed society (nowadays) the importance of instrumental viewpoints decreases, while the importance of consumerist (temptations of the consumer culture) and scientific viewpoints (as a prerequisite for economic growth) strengthens. We can argue that the instrumental approach is disguised in various forms, as it is not usually publicly discussed, but is rather the designer of discussion. However, scientific viewpoints have lost their connectedness to ideological goals, changing along with economic goals. Individuals who are genuinely concerned about the environment are also surrounded by such market rhetoric. At the same time, the practical immediate relationship with nature that helps to implement fragmented environmental messages is decreasing.

In parallel with people moving away from nature and the increasing fragmentation/controversy of environmental communication, the discursive level of political problem solving is diverging from actual environmental practices. An example given in the article ON PLANNING (II) of how the meta-concept of "sustainable development" has changed indicates that political discussion is shifting towards instrumental debates, which are definitely easier to achieve than humanitarian goals, but more distant from the anxiety perceived in the lifeworld. The analysis of the logic of the participation process in the same article revealed that, although the public discussion in itself was instrumental, the decision-making path from the problem proposition to the solution was not. The instrumentality lay in the linguistic level of discussions, but the decision itself led to uncertainty in favour of economic interest. Here the theories of modernisation allow choosing between two options: whether the society has developed in an overly complex manner so that the reaction to lifeworld anxiety exceeds its rationalisation capabilities (peculiar to late modernity), or whether there is a mistake in the assumption of what we can call the core of the social system. I prefer the second explanation, according to which the reflective "public sphere" was staged next to another, unpublicised sphere that followed the logic of early modernity.

It can be concluded that the development of modernity in a transition country leads to the emergence of the ecological paradigm in environmental consciousness, although at the institutional level the changes are more inert and masked, and the social or environmental paradigm is prevalent. The institutional capacity of a small, developing country for contradictory reflection develops slowly, as its state apparatus is not as responsive to the demands of complexity as in the case of old big European states. The collapse of the existing social system and transfer to a new system played a role in the dynamics of environmental paradigms, in particular in the appearance of the ecological paradigm of the Phosphorite War of the 1980s (which involved extremely complex issues, although they were few in number compared to the present time).

Which economic, political, historical and cultural factors shape the communication of environmental issues and risks? How did the modernisation of Estonia within the Soviet Union and as an EU member state influence the communication of environmental issues?

Economic factors. The Soviet system rationalised itself through five-year production plans that subordinated nature to the Soviet system. Therefore, the exploitation of natural resources was discursively justified as a public good. In Eastern Europe, decisions about nature were made in the closed circle of politicised science, industries and state apparatuses (Kochtcheeva 2002; Rinkevičius 2006; van Assche *et al.*, 2010; Waller 2010). Still, the peculiarity of Soviet industrialism was that the causes of environmental problems were attributed to cultural and social, not economic-technological reasons as in the Western industrial societies. As industry had direct access to political power, unreasonable extensive production and experiments with nature were possible. Although norms to protect nature existed, the norm levels were basically classified. However, despite rapid urbanisation, a relatively large number of inhabitants were employed in the sector of (intensive) agriculture. Due to the low quality of and deficit in retail products, the practices of the natural economy were relatively vital and people were kept from extensive consumerism. Therefore, exploitive production existed along with a frugal lifestyle. The lack of opposition to economic power shaped the face of Soviet modernity: a low degree of system complexity, a high degree of uncertainty in decision-making and the repression of feedback to the system.

The analysis of scientific articles for the article ON ENVIRONMENTAL CONSCIOUSNESS (I) showed that the environmentally hostile decisions and plans of the industrial sector formed the propelling force of the popular movements in Eastern Europe in general in the 1980s. The following decade witnessed, on the one hand, the collapse of economies (large enterprises going out of business) and the disappearance of major sources of pollution and, on the other hand, a decline in the capability of collective reflection. Individual survival allowed for the observing of the environment from an instrumental viewpoint. This also supported the continuance of the social paradigm peculiar to early modernity.

Industry's historical dictating relationship with the political-administrative system persisted during the period of transition to a market economy because Estonia's economic condition was extremely difficult. The already weak connection of economic interests with environmental protection was further weakened by the lack of administrative capacity. The legislation adopted in anticipation of the accession to the European Union did not include sanctioning mechanisms. Therefore, the lack of modern institutions was accompanied by discursive promises that did not have compatible legitimating practices. Because the downsides of the functioning of a market economy were little known in the former Eastern bloc, the approach to a free market economy was

overly liberal. The institutionalised uncertainty in decision-making followed its historical path of dependency, but the lifeworld level lacked institutions to support the continuation of a frugal lifestyle.

While the EU has started to verify the efficiency of environmental protection more strictly (e.g. emissions trading), the demands of market operators of the 21st century regarding environmental resources are still ahead of the government's policy-making ability in the fields of energy and natural resources. The lack of national development plans has led to cumbersome administrative solutions and legal disputes between economic entrepreneurs, citizen associations and local administration, on one hand, and the state, on the other hand. However, the lobby of economic interests is fighting environmental protection at the EU level and, therefore, as decisions are made at the EU level the ensuing opposition to the economic interest at the local level is difficult.

Political factors. Under the Soviet regime, it was difficult to raise environmental problems, as the political system maintained its legitimacy without the need to react to public concern. The denial of environmental problems, lack of information, and absence of inner reflection of the society increased environmental problems and prevented the formation of a modern environmental paradigm (peculiar to simple modernity).

However, during the Soviet era, environmental protection functioned relatively well even without a special policy because it was supported by other factors. For example, the issue of waste management was solved by the fact that the quantities of household waste were not large (goods were sold basically without packaging). Although unofficial local dumping grounds were common, several re-collection systems worked remarkably well; all bottled drinks and tinned products were packaged in high-deposit standardised containers (reused until destroyed) and the collection of scrap paper was a civic duty (mainly by schoolchildren). Waste was tied to a framework of aesthetics, not to environmentalism. As the re-collection systems were embedded in the practices of the natural economy, these worked quite well without excessive reflection about the systems or environmental problems.

Due to "glasnost" at the end of 1980s, the access to information increased, and Western and Eastern environmentalism met in public communication. The concern about national natural resources and the water supply united environmentally concerned people in a national wave of anxiety. These new movements served as the first political parties in the newly independent (August, 1991) Estonia. These were the institutions that enabled individuals to ease their anxiety about the exaggeration of uncertainty. But environmentalism lost its importance in public communication by the next year, as a society can't be built on a single institution. After the collapse of the USSR, a new system still needed to be created. The Greens did not return as a political party until 2007. Then the Green Party focused on practical solutions and technological innovation: they presented an agenda of sub-politics, although the politics was not yet there. The Green Party's influence also forced other parties to form their

platforms under the environmental paradigm (Gold 2011). The platforms are dominated by sub-political suggestions, based on the assumption that solutions to environmental problems lie in additional adjustments of technology and control. This is a feature peculiar to simple modernity.

After regaining its independence and initiating rapid reforms in the early 1990s, Estonia took a course toward the European Union and adopted a number of environmental laws, following the legal and administrative traditions of the EU. These laws entered into force and became operational only after the accession to the European Union in 2004. While the accession to the EU and agreement to follow a number of European rules of procedure that were adopted to facilitate the involvement of the public accelerated the development of environmental policy (which faced strong opposition in economic circles), different administrative traditions clashed in Estonia. The urgent need to meet the European "top-down" requirements did not leave any room for listening to "bottom-up" initiatives and protests (see the article ON PLANNING, II). It appears from the reports of the National Audit Office (Keskkonnaseire... 2007, Ehitusmaavarade... 2009, Kalanduse... 2009, Pakendijäätmete... 2010, Arves-tus... 2011, Riigi... 2012 and Väärtuslike 2012) that there were considerable shortcomings in the practical implementation of the policies. Therefore, the lack of environmental protection can't be explained by the problems of an overly complex society, but only by the institutional inability to deal with complexity.

Historical factors. Until recently, Estonia was an agrarian country. Due to slow modernisation and the collective lifestyle imposed by the Soviet regime, the life experiences of individuals, including practices related to nature and the natural economy, were strikingly similar.

During the Soviet era, the issue of nature was compensatory and safe and, therefore, associated with cultural interests rather than with political activity. The Soviet practice of not acknowledging the personal needs of the individual and prohibiting and strictly controlling any "bottom-up" initiatives has left on the present-day political and citizen activities the somewhat negative mark of "forced collectivism".

At the institutional level, any civic initiative required skilful manoeuvring between the local authorities and Moscow, which, on the one hand, led to a situation where people got used to having no decision-making rights and, on the other hand, led to protests and double standards.

Cultural factors. The rigorously censored media and controlled citizens' movement of the Soviet era created a fertile ground for the development of interests in culture, nature and education, which were all intertwined. The authorities exercised less rigorous control of these "safe" substitute activities. For example, the magazine *Eesti Loodus* included articles on broader social issues, rather than only nature and the environment. The shortage of essential foodstuffs that forced people to grow their own food kept people close to nature and a natural lifestyle, although urbanisation started to have an impact on lifestyle. The lack of private ownership created a "Soviet mentality": a reckless

disregard for the environment. As environmental practices were not acknowledged at the level of the individual, we can speak of the social paradigm of early modernity.
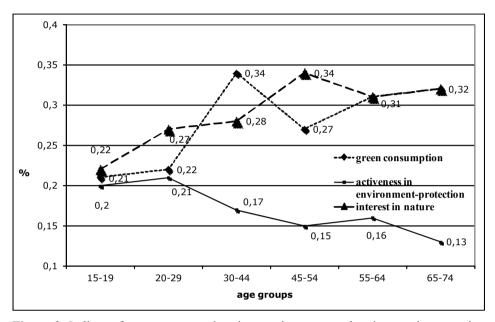
While for a person who was not able to "read between the lines" the Soviet world may have seemed safe, environmental problems manifested themselves both in the city and in the countryside in the form of cement dust, acid rains, polluted bodies of water etc. This led to a legitimate uncertainty regarding institutional decision-making. People also had to cope with global risks (e.g. the Chernobyl disaster) on their own. Therefore, the active relationship of the Soviet citizen with nature was not connected with the environmental paradigm, i.e. being aware of risks or implementing sustainable practices. This may have been the reason why the impact of the Phosphorite War, which sailed on the wave of nationalism, on the development of environmental paradigms, was short-lived.

The infrastructure supporting the sustainability of the environment disappeared during the transition period and the developing hedonism-individualism did not support the emergence of the post-materialist value structures (Kalmus and Vihalemm 2006) on which the Western environmental policies are based. The environmental media lost its readership (Figures 1 and 3 of the article ON ENVIRONMENTAL CONSCIOUSNESS, I) and the existing environmental movements sank into oblivion.

Western mass culture and EU policies created conditions for the "second coming" of the environment. Since 2005, the media have paid increasingly more attention to environmental issues (Figure 2 in the article ON ENVIRONMENTAL CONSCIOUSNESS, I). The environmental media, with their declining readership, have become more segmented, which threatens the survival of local publications. Supported by mass media, the perception of nature as landscape is being replaced by more complex scientific approaches, which, unfortunately, increases scepticism about the available information (on climate change etc.). While new infrastructure requires new environmental practices (the sorting of waste, energy-saving solutions etc.), conscious consumption is still, to a large extent, driven by the shortage of means (besides high risk awareness). Contact with nature is decreasing, while consumerism and its sub-type, sustainable consumption, are increasing (Figure 5 of the article ON ENVIRONMENTAL CONSCIOUSNESS, I).

The relationship with nature differs by age group (see the article on CONSUMPTION, IV). While the older generation's cultural interests are intertwined with an interest in nature and practices related to nature, as well as indifference to consumerism, the younger middle-aged group has adopted a consumption-centred attitude towards the environment. Despite the fact that the youngest age groups are characterised by high consumerism and indifference to environmental issues, it is this group that provides the most active environ-mentalists (see Figure 2). Several years have passed since the publication of the article ON CONSUMPTION (IV), and a comparison of data indicates that

different types of environmental relationships are diffusing between different age groups. Thus, we can speak of the normalisation of the environmental paradigm and the emergence of the ecological paradigm (in certain niches) at the level of the lifeworld. Therefore, the features of simple modernity are certainly present in cultural factors.

Figure 2. Indices of green consumption, interest in nature and activeness in protecting the environment by age group (percentages of age groups with high or very high index value) (Me. The World. The Media 2008, Estonian... 2009).

It can be concluded that the factors that still shape the Estonian environmental consciousness are the Soviet inheritance of industrial hegemony in environmental decision-making, the operationalisation of sub-politics without the internal development of politics, double-standards in decision-making with regard to the superior system (whether the USSR or EU), a decision-making culture that does not reflect on uncertainty, and the change in positions between direct nature relations and consumer culture.

How have the opportunities for individuals to converge around and discuss environmental issues and risks and their possible solutions changed over the past 25 years? What challenges are the participants in the discussions facing due to those changes?

The article ON CONSUMPTION (IV) describes how the practical relationship of individuals with the environment has changed. The economy, closeness to

nature and simple consumption patterns characteristic of Protestant ethics were able to co-exist with the socio-technical system of the Soviet period[8], in which individuality and everyday practical needs were disregarded and even disapproved of. The environmental aspect of practices and knowledge were not institutionalised but their environmental impacts were (subliminally) quite small (e.g. a lack of packaging, limited choice and shortage of goods and a lack of advanced technologies). Apart from a few nature protection associations and the broad readership of the magazine *Eesti Loodus* (Estonian Nature), which included people who were interested in nature and culture, individuals did not feel the need to join together to discuss and solve environmental issues. However, they were connected by similar deficit-oriented consumer experiences (Keller 2004), which reproduced a natural-economic lifestyle and decreased the need to attribute special meaning to nature. Asking critical questions was restricted by official censorship and self-censorship; therefore, Soviet Estonia can be described as a form of modernity without a particular degree of reflection. The transitional period at the beginning of the 1990s unsettled and mixed the socio-technical systems, which had subliminally reproduced sustainability, and shrank the massive environmental movement that had emerged during the process of regaining independence. This abolished nature and its interpretation from both the public discourse (in the media and political discussions) and the practical life of individuals (decreasing the number of people employed in agriculture, continuing urbanisation, and the disappearance of the rural infrastructure). However, the quite high number of media texts that focused on the loss in values reflects the retention of concern at the level of the individual and the inability to form institutions to support the environment. Although anxiety existed, it was reduced by an institutionally organised side effect: silence in the "public sphere".

The implementation of an environmental concern that is developing in line with late modernity and is now based on mediated communication rather than immediate contact with nature requires a certain analysis and discussion practices from individuals that are not similar to those during the Soviet period. A clear differentiating factor is consumerism, which divides people by generations (see the figure above). Therefore, Estonia's shift towards Western modernity did not replace the former single and direct, yet unacknowledged experience with nature with equally distributed conscious interest in or concern about the environment. People experience environmental issues through other social relationships, primarily through consumption. According to the typology described in the article ON CONSUMPTION (IV), "access" to different types of relationships with nature and the environment is intertwined with access to

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[8]   Geels (2005: 446) socio-technical systems are systems actively reproduced, maintained and changed by various social groups and actors. A socio-technical system consists of regulations and policies, infrastructure, production and distribution systems, culture, symbols and other elements.

other relationships in society (see in the appendices the analysis of the research Me. The World. The Media). Moreover, the environment does not necessarily have to be perceived as a separate entity.

According to the consumer typology presented in the article, young people, whose relationship with society is (still) quite similar and simple, relate to the environment through consumerism. The fact that the share of environmentalists is the biggest in this age group is overshadowed by the overall hedonistic consumerism and this environmentalism merely reflects alternative cultural identities (vegans, animal rights groups etc.). High consumerism without any relation to nature is most widespread among the Russian-speaking population, who have fewer opportunities to establish other (pressurising) relations (civic movements, politics etc.). On the other hand, the older generation has preserved traditional environmental relations and ethics. They are probably also more immune to the challenges presented by consumerism. The relationship with nature of younger middle-aged people is characterised by modern romantic ethics – green consumption – in which conscious concern about the environment is intertwined with selfish consumption behaviour. This group is characterised by high awareness of risks and the lifestyle of the young family. The fourth type is comprised of a diverse group of people whose contact with various aspects of society is more one-sided and passive than that of the rest of the population. They do not have consumerist characteristics, probably because they do not have the necessary means, and at the same time there are no compensating natural-economic practices. Therefore, the modern institution of environmentalism is more characteristic of the younger middle-aged group, with their more active lifestyle.

Using cluster analysis, the article ON CONSUMPTION (IV) was developed further based on the data of the study "Me. The World. The Media". The clusters were formed on the basis of six aggregate factors of relating to the environment and society: activity of personal relationships, activity in consumer relationships, involvement in citizen associations, realisation of the interest in nature, voting behaviour and cultural interests. The typology is based on Giddens's structuration theory; therefore, the indices include only factors that concern practical consciousness: what people claim they do. The clusters turned out to be sequential: 1) people who have diverse active relationships with society, 2) a similar group whose practical relations are more moderate, 3) people who are quite passive in their social relationships, but are active in citizen duties and nature-relations, 4) people who are oriented towards consumerism and 5) people who have passive or insular relationships to society.

It appears that people who have diverse and active relationships and are characterised by high consumerism are well aware of different risks and know how to deal with them (i.e. through informed consumption behaviour). High awareness of and sensitivity to risks does not mean, however, that the people of this type have a pessimistic view of the future. On the contrary, they are optimistic about the future and willing to take risks and use new technologies.

Thus, risks as the identified dangers of the future have been turned into a connecting element and are probably a reason for establishing social relationships. People who are actively involved in society are pioneers who adopt new practices of avoiding risks and establish the addressing of risks as a social institution. People who are passive and have few relationships that connect them with society and its members are also characterised by low risk awareness. They rarely act to avoid risks, but their outlook on the future is more pessimistic than in other groups and they tend to place themselves in the lowest positions in society. Risks as possible future defined scenarios developing out of uncertainty play an important role in socialisation, in which the reflexive types are the winners and the non-reflexive ones the losers, although the institutionalisation of risks is a practice of those who, at the discursive level, win through risk situations. The growing distance between Estonians and Russians, and males and females, in their ability to institutionalise or follow risk practices reveals the turbulent nature of the risk institutionalisation process.

The article ON RISKS (III) indicates, however, that besides the risks that through institutional definition gradually become the objects of personal projects of individuals, individuals also have to cope with uncertainty by imagining possible threats and suitable solutions to those threats. This means that the optimistic attitude and technological optimism of those parts of the population who are more willing to take and tolerate risks may also be an unconscious cover to ease their anxiety about uncertainty. Indeed, the Me. The World. The Media (2011) research revealed that in a situation of real danger those in the activist group, compared to other groups, were most likely to mention prayer as the solution to a threat (although other solutions were more common). The active groups also suffered most from a lack of time, having no time to reflect on uncertainty. This leads me to believe that anxiety is not a characteristic of the individual, but related to the structural relations of society.

Similarly to the ecological paradigm described in the article ON ENVIRONMENTAL CONSCIOUSNESS (I) and the typology in the article ON CONSUMPTION (IV), individuals have several options: they do not understand risks in the same way and contextualise them through their individual relations with society and the environment. The article ON RISKS (III) outlines a typology that reveals four different risk strategies based on the individual's relationship with society and the lack of certainty of the situation. It appears that when people receive warning messages from the institutional level about possible pollution or risk instructions, and those messages do not fit their experience with the situation or contradict the beliefs of those receiving the message, a process of critical analysis is activated, contradicting institutional facts. Solutions to risks are personalised (which may also involve the institutional messenger). A qualitative analysis of the article ON RISKS (III) indicated that, while in the past individuals could rely on the shared experience of who to trust, nowadays shared experience may be related to a failure of the system to offer solutions, i.e. the shared experience is sought more randomly.

The number of risk messages is growing as society becomes more complex, often to an extent that exceeds the ability of people to receive these messages. It is physically impossible to deal with all risks as personal projects. This would require certain strategic decisions: What is important and what is not? As the study ''Me. The World. The Media'' indicates that the number of individuals with passive relationships in society is growing and the number of activists is decreasing[9], we can assume that risk strategies are becoming more varied and indicate opposition to society in different ways. This may create new phenomena, e.g. general passivity (because risks require preliminary knowledge which members of society do not have due to insular relationships) or a fertile ground for terrorism.

It can be concluded that, while during the Soviet period individuals' similar frugal lifestyles and natural economic practices were not acknowledged as converging elements, present-day practice communities assume acknowledged action within Western environmental socio-technical systems. Still, the modern tendency to converge around mediated communication about the environment and environmental consumption is not as uniform for individuals as were the unacknowledged nature relations. Consumerism appears to provide individuals with an acknowledged restructuring potential only in combination with other active relations in society, although it also operates as the only catalyst for those groups who have no easy access to rule formation. Groups with various types of active relations in society also take part in the institutionalisation of risk, which supports individuals' uneven distribution with regard to activated uncertainty. Individuals' decisions that are made in the context of extra uncertainty may endanger social institutions, producing negative rebound effects. However, the history of the 1980s reveals that too much collectively perceived uncertainty still makes it possible to form institutions that help individuals to unite (e.g. environmentalism at the end of the 1980s). However, these institutions can't unite individuals for long, as a society cannot survive on single institutions. Environmentalism can develop only in parallel with complexity.

Why can't institutions meet individuals' expectations regarding environmental issues and risks, and vice versa, why is it so difficult for individuals to communicate their expectations and anxiety in a way that is acceptable to and taken into account by institutions?

The anxiety about environmental issues experienced by individuals does not necessarily coincide with the possibilities created by institutions for alleviating tension, such as (non-)consumption of certain products/services, public

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[9]   This may also be a sign of individuals channelling their activities into different types of activity which researchers have not included in their questionnaires, e.g. moving to virtual environments.

decision-making processes concerning the use of the environment, and media coverage. Each of these institutional communications is logical in its specific area of operationalisation, but the complexity of risk warnings does not take into account the ability of the individual to interpret these messages temporally and spatially as a whole. The complexity of a society can develop to the level where the individual is not able to react to institutional warning messages. As the individual's life context has become much more complex and changeable, institutional predetermination may start to prevent people from seeking individual solutions that are appropriate in given situations.

The articles ON RISKS (III) and ON PLANNING (II) indicate that it is difficult for individuals to describe a risk if they have never been exposed to the risk before or have to face it in a new situation. Tension is often manifested at the emotional level and emotional reactions are what institutions have problems dealing with because emotion often indicates a conflict between the offered solution and its unsuitability in a specific context, therefore offering no solutions ("Do not start mining!" is not good enough). Reacting at the institutional level requires abstraction and generalisation in order to ensure equal treatment of individuals. At the same time, solutions to specific problems faced by individuals cannot be similar. Moreover, the lexicon and set of rules used by institutions do not include the definitions necessary for rendering meaning to everyday phenomena (e.g. "home"; an example from the article ON PLANNING, II). The empirical analysis in the article ON RISKS (III) indicates that a typical strategy used for giving meaning to a risk message of an institution in an unfamiliar situation is to put the message in the context of the previous experience of the individual (secondary observation). This means that the institutional message is not received directly, as it is delivered. Given the complexity of modern society, such an approach is positive because it helps people to adapt risk communication to the variability of reception contexts. Extreme uncertainty and deep distrust of institutions means, however, that individual choices alone are not sufficient to react to a risk and this may result in putting other people in danger (e.g. rushing thoughtlessly into traffic).

A solution proposed in the article ON RISKS (III) is to strengthen relations within a community so that in a risk situation individuals can rely on established communication practices in order to deal with unexpected issues, alleviating their anxiety by reducing uncertainty. Taking into account that the number of individuals with active social relations is decreasing (Me. The World. The Media 2002–2011) and that people's "field of vision" is narrowing due to their withdrawal from various information environments, exposure to risk communication may become a significant barrier for an individual because of the extent of uncertainty they are expected to deal with. Here, too, supporting community relations can help. As the uncertainties of the lifeworld and the system are always different and as in institutional communication the instrumentalisation will just create new uncertainties, the ability of the lifeworld communication to move between different social systems is greater than in the

case of an institution. In addition, the ability to use communication constraining mechanisms (such as ethics- or tradition-based arguments) is strengthened in the course of lifeworld communication. When reacting to the problems faced by individuals, institutions are not capable of abandoning unsuitable rules of procedure even if the institutions themselves are struggling with incrementalism.

The article ON PLANNING (II) indicates that interaction between individuals can help them to find comprehensive solutions despite the system. This is supported by their shared experience, which enables individuals to use their ability to analyse so that no impossible situations are created. For example, numerous development plans and legal frameworks regulate individuals' lives. It is impossible to follow all of them without contradictions, even though all solutions may seem logical when put on paper. This risk does not arise in the course of lifeworld conversation.

What problems are caused by the fact that there are fewer shared experiences (experiences are fragmented in modernity) and that solutions are sought at a more abstract, linguistic level?

An analysis of the changes in nature-related experiences described in the article ON ENVIRONMENTAL CONSCIOUSNESS (I) indicates that having shared knowledge, even if it is based on routines and individuals are often not even aware of it, diminishes the need to discuss and analyse complex matters. Diminished shared knowledge increases the need for interaction and communication between communities. Unfortunately, communication is not able to convey all knowledge but only selected "bits and pieces" (which is also predetermined by institutional power relations). Shared knowledge decreases the need for communication about time and space in decision-making. Unfortunately, the differences between communities increase the need for analysis, explaining and discussion, which makes the matter more complex because each interpretation increases the number of differing viewpoints, causing anxiety and controversy. At the institutional level, participation results in an increased administrative burden, which inevitably raises the question as to where the line is at which contradictory arguments can be disregarded. Different arguments involve different levels of institutionalisation, and different levels of power. Institutions must translate very complex social relations into abstract communication (including figures, graphs, maps etc.), which is, unfortunately, not always sufficient to deal with the relations between individuals. For example, the word "democracy" is used to describe different countries despite the fact that the rules of procedure implemented by these countries to allow for participation are very different and provide different results. Therefore, institutions are not able to translate the temporal and spatial experience found in

social relations into (linguistically expressed) decisions so that they can be adapted to the needs of different parties.

Language, and its power to hide complex relations behind simple and reliable (legitimate) words, makes it possible to hide power games and to achieve illusory consensus (see: the changing of the definition of sustainable development in the article ON PLANNING, II). For example, some products are marketed by using agreed upon definitions that describe them as environmentally friendly, leading consumers to think that their purchasing behaviour is actually a practice of environmental protection. On the other hand, the sustainability of the environment can be ensured at higher levels by purchasing products that do not make promises regarding the environment, but are just structurally more efficient (e.g. using vinegar and sodium carbonate instead of "ecological" cleaning agents).

Why is a broad-based discussion on the environment missing in society, although it is often clamoured for, and unsolved issues increase the general level of anxiety? Which conditions can create a common concern, as occurred during the Phosphorite War?

An analysis of the data of the media study described in the article ON ENVIRONMENTAL CONSCIOUSNESS (I) reveals that as a society develops the issues related to the environment (or any other topic) become more fragmented. For example, while in the media study of 1983, 23 codes were required to analyse environmental issues (Lauristin and Firsov 1987), in 2010 the number of codes was 126, as using fewer codes would have been impossible in the analysis to differentiate between mediated environmental issues (Kiisel et al 2011). At the same time, the viewpoints used to interpret the environment have changed. Instrumental approaches are partially disguised as consumerist approaches, and have increased remarkably. The decline in ethical, aesthetic, cultural and ideological viewpoints may also limit communication, e.g. by offering tautological arguments, such as "You cannot do that!" or "It has never been done this way!". In a fragmented discussion, opinions do not merge. These discussions just lay a foundation for ensuing communication. Instrumental arguments do not offer solutions to conflicts, which involve ethical or cultural opinions, although these opinions are often the ways individuals translate their anxiety. Therefore, a broad-based discussion of the environment cannot emerge.

The "phosphorite spring" was a result of the opening of the restrictive Soviet system to reflection. *Glasnost* aimed to open channels between individuals and the Soviet power structures. Every debate requires a framework. The anxiety of the 1980s could not turn into a fragmented debate because there were no suitable complex institutions. Anxiety (the reasons for its rise are often hard to define) aggregated by itself with the help of individuals. There had to be an umbrella topic that could be used to fight the ideological enemy. Environ-

mentalism and ethnic nationalism became the ideological frames of reference of the independence movement. This movement had features similar to the ecological paradigm, as very complex issues were publicly discussed. But the discussion of the environment was possible due to the uniting effect of opposition to uncertainty (opposition to the abstract Soviet structures, which the individuals were a part of). As can be seen from the analysis of the transition period, at the lifeworld level the contextualisation of abstract environmental issues lost its uniting power in parallel with the breakdown of institutions. Therefore, the main environmental concern of the Phosphorite War was the question of how to channel anxiety. This was supported by the opportunity for shared opposition (e.g. to Stalinism). The opposition of groups of individuals was rather simple: Intermovement versus Popular Front, "we" versus "they", and "wrong" versus "right". Therefore, massive anxiety led to decisions that ended the existence of central institutions. In a situation where new institutions were required, i.e. meanings had to be instrumentalised, debate fragmented and subsided. A common opposition is needed to repeat the experience of the Phosphorite War and to overcome the fragmentation of the debate that places individuals in opposition to each other.

1.1. Conclusions and rising of meta-questions for theoretical analysis

Table 3 below enumerates the conclusions that can be drawn from the articles about the communication of environmental issues in Estonia. More general questions that are interpreted from the perspectives of society and communication theory are raised based on these conclusions (the questions are also presented in Table 3).

Table 3. Central empirical conclusions of the thesis and resulting theoretical questions

Empirical conclusion	Theoretical question
Rapid (late) modernisation of Estonian society and accession to the European Union have led to the emergence of the environmental paradigm, fragmentation of environmental publics, instrumentalisation of the approaches to the environment and domination of consumerist arguments in environmental debates. The prevailing environmental paradigm at the institutional level that is peculiar to simple modernity is accompanied by the ecological paradigm at the level of the lifeworld. This, unlike the early modernity of the Soviet period, which was characterised by the social paradigm (nature as a production resource), involves a shared nature experience and practices of the natural economy. The humanitarian approach to nature made the contact with anxiety about the environment for the individual more immediate than does present-day consumerism.	Why doesn't the institutionalisation of environmental issues in complex societies offer solutions without rebound effects?
The transitions to a free market economy and accession to a superior political system (EU) have supported a mechanical approach to environmental issues. The implementation of sub-politics without prior institutionalisation of politics has reduced bottom-up initiatives of policy formation. By applying double standards in institutional management, uncertainty-based tensions are alleviated.	
Estonia has moved from the Soviet-time frugality and direct environmental relationship to a late modern situation, which is characterised by mediated environmental relationships and the fragmentation of the analysis of, and seeking solutions to, environmental issues and risks.	Why are individuals unable to converge around environmental issues?
Institutionally defined risks and solutions are not able to alleviate the anxiety of individuals, and opposition to institutional risk communication may become a uniting factor. The participation in the institutionalisation of risk is a practice of those who, at the discursive level, win in risk situations. Risk-taking groups have an acknowledged restructuring potential in the society.	
The fragmentation of temporal and spatial experiences characteristic of late modernity creates conditions for the distortion of time and space through linguistic expression. For example, institutions offer common interests and secondary sub-policies based on these common interests as solutions.	
The development of community relationships may offer solutions to alleviate tensions between institutional needs and opportunities, and to decrease the anxiety of individuals through the reduction of complexity. Yet translating the differences between communities through institutional mediation may make communication even more complex and increase anxiety.	

In the next chapter, I will seek answers to the above two general questions based on macro-level social theories – system and structuration theories – in an effort to interpret the findings of the empirical analysis.

2. SYSTEM-THEORETICAL REFLECTIONS ON THE COMMUNICATION OF ENVIRONMENTAL ISSUES

Through an analysis of Estonian public communication of environmental issues, I have reached quite expected conclusions about the characteristics of late modern conditions. Environmental communication is characterised by an increasing proportion of mediated nature relations, institutionalisation of environmental consumption practices, fragmented publics, an instrumentalised and consumerist approach and the resulting conflicts between environmentally concerned individuals and institutional solutions. Next, I will look at these empirical conclusions through a theoretical analysis. I have chosen a system- and structuration-centred approach because it enables me to examine the conditions of understanding and giving meaning to the environment and environmental issues in society, how these conditions can be rearranged and the results for both individuals and societal integration. My analysis of the relations between society and individuals is structured mainly around two theoretical problems raised in the above two empirical chapters. Each question is divided into sub-questions. I will start with an overview of the main concepts of the theoretical authors and then interweave them in the consequent discussion. Conclusions regarding the theoretical analysis of each question are presented separately.

I Why doesn't the institutionalisation of environmental issues in complex societies offer solutions without rebound effects?

2.1. Basis for appraisal: Habermas, Giddens and Luhmann

In order to answer this question, I will start from more general ones: How are institutional rules of discussing environmental issues formed? What is the role of an individual in (re)forming these rules?

The issue raised in the "Introduction" concerning the growing anxiety of individuals and increasingly complex environmental communication, coupled with the inability of society to solve environmental issues are, according to Habermas, not caused by whether and how environmental issues are perceived by the members of a society but by how they are forced to solve these issues.

Although at first glance an environmental crisis is reflected in individuals' concern about the environment, the reason for the growing anxiety is the diminishing legitimacy of the social system: the institutional truths regarding environmental issues and their solutions diverge more and more from how these issues are formulated in the ideal discourse of the lifeworld. Thus an

environmental crisis can grow into a real social crisis only when "the structure of a social system allows fewer possibilities for problem solving than are necessary to the continued existence of the system" (Habermas 1976: 2). As long as society can offer legitimate viewpoints on environmental crises, environmental issues pose no threat to society. A crisis of society differs from a crisis of individuals.

According to Habermas (see 1989: 240), the individual's lifeworld[10], which is founded on and develops from people's natural ability to communicate meaningfully, is jeopardised by the integration of the social system. In particular, system integration is based on the steering media of a bureaucracy and the power that mediates the goal values of the lifeworld through instrumental rationality[11], increasing the complexity of society in an internally logical manner, but at the same time diminishing the individual's ability to solve the problems perceived in the lifeworld contextually through discussion. For example, bureaucracy measures meanings through capital intensity, while power does it through votes. Measuring the values of nature applicable in the lifeworld in terms of money is difficult and voting on a decision in a political body only establishes the majority's intentions with regard to nature. Therefore, according to Habermas, the integration of society is opposed to the integration of the individual's lifeworld.

Differently from Habermas, Anthony Giddens considers the role of the individual as central to the solution of society's problems. According to Giddens's structuration theory (*The Constitution of Society*, 1984), it is precisely individuals whose mutual relations shape the society, although they may not be fully aware of this role. According to Giddens's view, individuals acquire important social skills in the course of socialisation, and also reproduce and shape social relations (consumption, family relations, educational choices etc.) and institutions further through personal performances and their routinised recurrence. For example, when involved in environmental impact assessment, individuals reproduce the justification of the relevant approach to the natural environment. By doing this, they de-legitimise alternative ways of discussing the environment because social relations can function only through common institutionalised rules. The emergence of new rules is, however, not entirely under the control of individuals.

In the Giddensian approach, the activities of individuals have latent side effects that play an important role in the integration of society, creating conscious motivation for new activities, which, after being implemented and analysed, bring both desired and unplanned results. For example, improved

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[10]   According to Habermas, a lifeworld is a set of background knowledge or a horizon, whose meanings are formed in communicative action, in the course of continuous testing of its truths. Mutual understanding and its development require culturally and linguistically organised communication between people.

[11]   See, for comparison, e.g. Ulrich Beck's (1992) social and instrumental (economic) rationality.

consumption opportunities increase the need for mineral resources and power plants, which lead to relevant protest movements that raise the alarm about the decline of cultural and environmental values. Public discussion of the environment must, therefore, move through very diverse realms of life. This is actually a factual trend adding complexity to decision-making.

According to Giddens, the human body plays an important role as the means of social integration. This perfectly contextualises the topics of time and space in social integration. Humans can use only the time and space that are accessible to them, influencing the environment, although at the level of discursive consciousness there is no contact with nature or the environment. And, vice versa, individuals can give environmentally sophisticated meaning to their activities, for example through the practices of environmental impact assessment, "green" shopping or being in nature. Nevertheless, practices that are not discursively related to nature and yet use the time and space accessible to individuals may have a greater impact on nature. For example, an individual may be busy with activities that leave no time for being in nature. Or, the other way round, an individual may spend so much time in nature that there is no time for consumption. This is an important factor in the labyrinth of increasingly diverse and controversial institutional requirements. The limited time and space available to the individual makes it apparent that the institutionalisation of new practices must necessarily supersede some old ones. The article ON ENVIRON-MENTAL CONSCIOUSNESS (I) reveals that direct nature relations have been replaced with (environmental) consumption in the course of modernisation.

As neither of the above theorists has dealt with the topic of the environment directly, it is appropriate to include Niklas Luhmann (1995), whose elaborate treatment of communication addresses complexity, as well as ecological issues (1989). His opposing views on the relations between agency and structure are useful in explaining the shortcomings of Habermas and Giddens. While Habermas (1976: 9) sees nature as the outer nature of a system – as a material resource of the non-human environment – Luhmann does not allow any kind of reification of the system, e.g. that individuals or nature constitute parts of the social system, because that would presume a one-to-one relationship between individuals and the system, and so the meanings of natural phenomena or resources are fixed[12]. Luhmann treats the social system as an abstract communication system.

Luhmann's theory of autopoietic communication enables us to understand nature and the environment only as a construction that depends on origin and viewpoint (the functional system and its code). The elements that are important in this view or, vice versa, redundant or too complex for analysis, are identified

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[12]   It is easier to understand the separation of the individual and the social system as a relationship between the person as a physical system and the body as a physiological system. For example, the human mind is not able to enter into a dialogue with an internal organ but psychological stress may cause a physiological reaction in an organ.

by system observation. Autopoiesis differentiates between the known and the unknown, i.e. between the inner nature of a social system and its complex outer nature. Consequently, the system is a means of simplifying the uncertainty of the outer environment and the system's truth depends on the viewpoint and its analytical scope. For example, a report on environmental impact assessment determines the scope of observation by selecting the types of possible impacts and defining the geographical region to be studied.

Communication does not dissolve the undetermined outer environment into non-existence or into the inner nature of the system. It just morphs into another opinion that is in line with previous communications and, therefore, increases complexity. The empirical analysis of the article ON PLANNING (II) indicated that the opinions of officials and local people regarding local nature were distinct and mutually incompatible. Any attempt to reconcile them would have only increased the scope of autopoietic observation, which may have led to entropy, i.e. the loss of the system's identity (cf. Habermas's rationalisation crisis). According to Luhmann, truth remains outside individual acts of speech and is in constant movement. Complex late modernity requires individuals to confine the discussion of environmental issues to a reasonable form. To do that, the conditions shaping the understanding of nature need to be identified.

According to Jürgen Habermas (1976: 9), a natural environment is connected to a system through production relations. This opinion is shared by subsequent modernisation theorists, Ulrich Beck (1986/92) and others, according to whom modernity was born from opposition to nature, although production relations shape nature more and more into an object of the system's internal communication. Thus, nature is re-socialised through encroaching consumerism and also by protesting citien associations (see: the articles ON ENVIRONMENTAL CONSCIOUSNESS, I, AND CONSUMPTION, IV). In different countries at different stages of modernisation, the levels of re-socialisation of nature are determinable. For example, Eurobarometer 2007 (issued in 2008) shows that, for Europeans in general (i.e. in the EU27), the word "environment" is mostly related to such highly mediated issues as climate change and pollution in cities, while Estonians differ in terms of its association with direct nature experience. Fourteen per cent of Estonian respondents associated the environment with "green and pleasant landscapes". The relations with nature were more visible in the countries catching up with modernisation: in Hungary and Poland, beautiful landscapes were mentioned as the first association by twenty-five per cent of the respondents, and in such highly modernised states as Germany, Belgium and France only by six per cent.

In Luhmann's non-reified approach to the social system, nature and its resources should be seen only as objects of observation. This allows Luhmann to avoid what is criticised in the approach of Habermas: that nature cannot be a

part of the ideal speech situation[13]. Nature becomes observable only through inclusion and exclusion by the system (nature cannot speak itself and its motives are unknown to humans). Therefore, the definition and exploitation of nature cannot end because communication can't be ended. In the course of the development of the system's inner environment, nature merely becomes a part of an infinite number of discussions. According to Luhmann, the natural and human environments cannot be considered separately because they can exist only through observation that aims at differentiation between the natural and "human" environments. While according to Habermas (1976: 37) with growing complexity the system of the world society shifts its boundaries so far into its environment that it runs up against the limits of outer (as well as inner) nature, according to Luhmann society cannot do that because such boundaries exist only in communication. Therefore, both nature and environmental issues, as objects of communication, are always in an unfinished state. The communication will always find extra opportunities for production, even if the physical limits seem to be already there (this calls to mind the warnings of the Club of Rome).

While according to Luhmann individuals can partake in meanings that are constantly updated in the uninterrupted and endless system communication, Giddens is of the opinion that in their everyday lives individuals are not too bothered by the infinity of communication, focussing instead on the creation of meanings only in certain situations and not very often. The practical consciousness that controls people's everyday lives does not enable them to examine themselves critically or to behave differently, for example to be less environmentally hostile. This would require the intervention of the discursive consciousness. While Habermas may see the issue of nature as a conflict of values that arises in social interaction and Luhmann may see it as meanings that open up in system communication, Giddens speaks of the need to pay more attention to immediate practical experience (with the environment) about which there is <u>no communication</u> between the agents (yet). While the discursive world, or a communicative system, can develop into one that is infinitely encumbered with the demands of complexity, for individuals who are constrained by their unconscious and bodily existence the increasing complexity of the system might pose a problem if they started to ask questions about their routinised practices with the same degree of complexity. Using their discursive consciousness, individuals may not be able to solve the perceived conflict because discursiveness can be used to create descriptions of situations only in the context of recursive grounding that meets the perceived requirements of resources and rules (domination and legitimisation relations). For a bystander (an observer of different structural conditions), the solution found may seem

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[13]   Habermas (1983) argues that people can be brought together to communicate in the "ideal speech situation", where the openness of different parties to mutual (linguistic) communication should ensure the best solution to the search for truth.

unreasonable because he may not see the intentionality of the decision-maker but just the routinised practice of decision-making. Therefore, through discursiveness individuals support the formation of institutions that help them to understand each other but do not directly support environmental protection in real life.

The ways in which environmental issues are defined and resolved are often criticised for being subjected to power and capital games. This is the discourse of Habermas and Weber: it is often thought that environmental value should be legitimised in decision-making as superior or equal to other values (ecotopias, the assumptions of sustainable development and ecological modernisation), and that it should be allotted equal power. While Weber (1930/92, 1978) sees a conflict between (given) value rationality and instrumental rationality, for Habermas (1984) this conflict is between the communicative and instrumental. The main problem in establishing the autonomy of environmental value is that people cannot understand the intrinsic value of nature; they can only create abstractions that become more and more complex with each new observation. Therefore, environmental value cannot be an alternative to the controlling media – capital and power – because due to its complexity it is a burden to the rationalisation capacity of the social system. While Habermas criticises the steering media for their distorting effect, Giddens points out that power relations are inevitable, as they help to create social institutions which enable people to understand each other.

Societal life is, in Giddens's terms, organised around rules and resources found in everyday practices and intertwined with each other. These practices inevitably contain power. Practical activity is governed by rules until discursive questions arise that challenge these rules (questions posed, for example, by a bystander). Resources (either power or material resources) are perceived in inter-human relations through signification and legitimation, i.e. through rules. For example, the payment of money may be allowed in some situations (when buying an environmental permit), and forbidden in others (as a bribe offered in land transactions involving nature protection areas). In order to enforce decisions that are advantageous to the environment, the meanings of situations that are either beneficial or harmful to the environment need to be signified and legitimised. This requires resources, e.g. civic initiative, authority or money (e.g. so that Greenpeace could buy advertising space). In other words, for Giddens (1984: 31) domination is the very condition of the existence of codes of signification and mutual understanding.

Therefore, public discussion of environmental issues is always primarily about domination. Based on Giddens, we can't assume that environmental decisions can be "free of distortions". In his opinion, a distortion occurs not in the perception of practitioners who are just following everyday practices established in social systems (e.g. discharging pollution into the environment), or have a reasonable discursive justification for their actions (e.g. "Well, you have to eat!"), but in the assessments of observers who see critical issues related

to those practices (e.g. pollution). This does not mean that individuals who are involved in society through various practices do not have common values or opinions (Habermas's goal values that are anchored in the lifeworld). These may exist and have a linguistically similar equivalent but a different meaning for each individual. While §5 of the Constitution of the Republic of Estonia provides that "[t]he natural resources of Estonia are national wealth which shall be used sparingly", it is not possible to find practices that deal directly with the implementation of that goal value. Each social system interprets the notion of "national wealth" in its own discursive way (e.g. through procedures).

Luhmann is not very critical of power issues. To him, power is not a political phenomenon because it cannot function through itself. Luhmann (1995: 453) has stated: "Power is reflexive to the extent that is applied to power, that is, concentrates precisely and exactly on directing others' means of power. This can occur from above, but also from below." Therefore, Luhmann sees power not as a means of repression but as a self-description necessary to maintain the system and on the basis of which information is processed (i.e. staying in power/having no power). Power, however, may be decisive in drawing a line from which the rationalisation of information becomes too burdensome for the system because crossing that line would mean losing the ability to abstract and, thus, also losing power. Based on Giddens and Luhmann, the environmental debate could be staged as logical discussions of the volume of use of water or the content of sulphur compounds in water because these subjects can be easily rationalised. At the same time, the critical question concerns the institutional capacity to legitimise a decision (i.e. a Habermasian colonisation attempt by the system).

In Habermas's (1976: 8) system theory, the social system relies on goal values which are essentially the values established in cultural traditions. The system learns and shapes its identity based on goal values: the steering media make their choices of observation based on these. As was pointed out in the article ON PLANNING (II), in Luhmann's terms the goal values of the lifeworld become topical only in confrontation with the identity-threatening communication of a system. This, in turn, causes the rationalisation of the lifeworld in the social system through rational observation, which can never understand the lifeworld as a whole, but only as a confirmation of a certain abstraction. Therefore, adapting Luhmann's approach to the issue raised by Habermas, the tragedy of the lifeworld is the impossibility of the existence of an expert on the lifeworld, as its values are always in transition.

According to Luhmann, there is no system communication regarding a goal value, such as a clean environment (although at first glance it may seem so); it occurs through the self-referential reflection between the system and its environment. System communication does not make judgements about what is right and what is wrong (i.e. what is more beneficial and what is less beneficial to nature). It merely provides a reference as to whether there is a distinction or not (asymmetrical communication). If such reflection occurs from the

perspective of the unity of distinction, the decision is rational for the system (1995: 455). For example, what is important in the process of environmental impact assessment is the completion of procedures (whether the report has been submitted or not, deadlines have been met or not, or limits have been exceeded or not), which serve as a basis of legitimacy. We call this instrumental, but the communicative system requires instrumentality to limit the scope of communication in order to maintain the unity of difference regarding uncertainty.

In the article ON PLANNING (II), the attempts to formulate goal values are illustrated by the definitions of sustainable development and national interest (i.e. the discussions held in the framework of the environmental development plan). Developments in the wording of both definitions are characterised by an absurd compromise, which is presented in a linguistic form that promises a great deal. Both examples represent the translation of the rationality of the economic system into the language of the lifeworld ("utterances", in Luhmann's terms) without any information value (except for consumers who are not included in decision-making but are represented as the legitimisers of the system identity).

The discussion raises the question of whether society is reaching the stage where its ability to learn (i.e. to rationalise itself in confrontation with outer nature) is hindered. What is it that would "free" the system from its burdening complexity and utterances that mask the controversy? I will focus on these questions in the following sub-chapters.

2.2. Increase in complexity and the institutionalisation of consumerism

Do individuals have the ability to reduce disturbing complexity? Despite being criticised for addressing the question of complexity inadequately (e.g. the main point of criticism by Archer, 2012), it may be logically inferred from Giddens's structuration theory that the individual's "democratised" choices have unexpected side-effects, which increase the need for discursive interpretation, reflectivity. An important factor is also individuals' opportunity to channel their authoritative and distributive resources into rule reformulation. This, in turn, amplifies the need to analyse the dynamics of the system, which may, naturally, reduce individuals' capacity for intentional restructuration. Hence, in order to facilitate mutual understanding under the conditions of complexity, there is still a need for a converging institution that can join the agents in structuration. Through the routinisation of conduct, individuals have the opportunity to ease their anxiety about complexity. But can this routinisation, for example through consumption, offer individuals enough chances for satisfactory meaning creation?

It seems that structural conditions assimilate in a way (i.e. the tradition of modernity, Giddens 1997) that the meanings that are unconsciously necessary,

yet not legitimate in the given structural conditions, are left unsignified (i.e. the Habermasian motivation mechanism of individuals, the loss of which can jeopardise the reproduction of the system). The dissatisfaction with the world order is certainly there. For example, the Sony youth research (2009) revealed that six out of ten 11–16-year-old youths from developed European countries are confused by conflicting messages about the environment and do not know whom to believe; they feel helpless and apathetic. Although the everyday life of young people may not reflect complexity very often, it does involve the possible routinisation of practices that are needed for the protection of the environment.

Why can't individuals involved in structuration reorganise the structure by interpreting it discursively so that the meanings not expressed in the given structural conditions are expressed without increasing the complexity of the structure?

Based on Luhmann, the reason is that individuals cannot interpret their motives external to the conditions of the communication system, whose natural course is to develop in complexity with every observation. This is supported by the type of reflection widespread in society, in Luhmann's terms "first-order observation" (1993, 1995), which lures the observer into making incremen-talising choices without confusing himself with complexity[14]. Similarly, as in the case of the communication system, individuals also have no access to their unconscious motivations. As both interdependent carriers of truth are inaccessible to observation, the attempts to balance differences between the unconscious and the system are condemned to failure.

The development of autopoietic complexity is clearly illustrated by the comparative media analysis (Kiisel et al. 2011) referred to in the article ON THE ENVIRONMENTAL CONSCIOUSNESS (I) (see the example in the empirical chapter, p. 25), which shows how researchers are unable to interpret situations by implementing the same system of categories that was used in the study conducted 25 years ago, although it was very complex and multi-layered for its time. The system of science has also changed. In addition, no one could have predicted 25 years ago that there would be scientific journals dedicated to such specific issues as can be found today. Complexity is something that can't be avoided, although there may be a desire to avoid the frustration arising from the difficulty in finding solutions. But is there an intolerable degree of complexity for the lifeworld?

A Luhmannian social system is comprised of functional systems that are unable to represent society independently and function only through self-reflection; they can do this only in interaction with other functional systems. Each functional system has its own code (1989: 116–118, 1995: 36) that enables environmental events to be seen by the system as information, and permits the

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[14]   Luhmann (1994: 29): "…communication is set up in such a way that it fascinates consciousness by the use of first-level forms and carries it away by the use of second-level forms."

system to distinguish between information and non-information. It is inevitable that ecological resonance functions through different systems, such as the legal system (which reflects compliance with the law, not the motive or reason for an act), the political system (the definition of the areas of power: has/does not have power) or the media. Although functional systems are important for each other, their codes are incompatible. The contacts between the communications of different functional systems only lead from one event to another. Disruptions in one functional system are transferred to other systems so that the *unitas multiplex* remains a paradox, becoming apparent only as non-transparency, an illusion or turbulence.

An economy, for example, depends on scientific discoveries, environmental resources and education. Also, environmental issues have to be brought to the centre of an economic system in order to solve them because the economy is unable to react to problems that are not expressed in prices. As seen in the articles ON PLANNING (II), ENVIRONMENTAL CONSCIOUSNESS (I) and CONSUMPTION (IV), the functional economic system has a special meaning in the social system because it socialises individuals into society by institutionalising consumerism and initiating pressure for environmental resources.

The economic system/institutions require constant justification to be able to function, therefore realising themselves through self-usage. Here, the opinions of the authors I've referred to diverge. For Giddens, the economy involves the everyday practices of individuals, the discursive meaning of which is revealed to them in another social system. The unification of social meaning in the context of complexity may hide the degree of complexity from the individual. According to Luhmann (1989), an economic system is reproduced through the possibility of continuing payments. If making further payments becomes impossible, it is necessary to develop contacts with other functional systems. Therefore, the complexity should be tolerable if an individual can afford reflexivity and also payments in very different and multiple fields of social activism. Indeed, the study "Me. The World. The Media" revealed that activists who had been socialised in society through very different practices and routines were well informed about different risks, but also had very optimistic world-views. Therefore, complexity is not a problem for individuals who follow the tempo of system reflection.

While Luhmann's approach to the development of complexity is linear, i.e. functional systems are constantly developing in mutual interaction, according to Habermas's (1976) theory of crisis, the development of complexity is circular, oscillating between the socio-cultural, political and economic systems. According to Habermas, in a situation of insolvency the administrative-political system is pressured by capitalists to rationalise the conditions, which can be used to create new conditions for the accumulation of capital. The side effects of production (e.g. pollution and ethical dilemmas) are established in the lifeworld through the legitimation process, assuming that the cultural tradition

of the lifeworld adapts itself accordingly by socialising the new generality-claims-based meanings (see: the article ON PLANNING, empirical part).

Referring to system theorists, I pose the question: what is the ability of the individual to generate abstract ideas that are born from the logic of *unitas multiplex* (e.g. sustainable development) and to routinise those in everyday life at the speed that they develop? Referring to Luhmann, all intentional attempts to equalise or balance the relationship between the environment and society should be arbitrary (e.g. sustainable development as the unity of the economy, the environment and the social sphere). Such a construction can emerge only when different functional systems come into contact. According to Giddens, the formulation of abstract ideas can only be grounded discursively: they are not to be found in real life, but are determined by the rules and resources available in a particular situation.

But this is a problem of the system, not the individual. The individual is attracted by first-order observation (or routinised everyday life, in Giddens' terms). In his book *The Reality of the Mass Media*, Luhmann (2000) describes the mass media as a system that interprets the information that has already been interpreted by other functional systems. It is the media that enable individuals to process information so that it does not burden them with an excessive need for reflection and does not jeopardise their identity. The media form a reservoir of options, even if people talk about a lack of communication or resonance. Media institutionalise the meanings behind unknown events. My media analysis, briefly described in the article ON THE ENVIRONMENTAL CONSCIOUS-NESS (I), revealed that the media increasingly provide content that represents consumerist viewpoints. Those are the reflection of the code of the market: in parallel with the segmentation of the social system, coding according to the economy is more and more available as socially meaningful communication.

The analysis in the article ON PLANNING (II) reveals how business interests legitimise the consumer role as the identity of the individual. The analysis of the oil shale development plan showed that although consumers were not involved in the decision-making process, the "national interest" in oil shale mining was legitimised as "[...] to guarantee Estonian consumers an uninterrupted supply of electricity, heat and refined oil shale products [...]", despite the fact that "consumer" is a notion that is not related to state borders. A similar and more revealing example is the pressure from the GMO industry on the administrative-political system. The rhetoric used by the GMO industry emphasises consumers' (political) right to take advantage of the innovative products of Monsanto. But at the level of the lifeworld, the attitude is quite the contrary: 58% of individuals claim they are opposed to the use of GMOs (Eurobarometer 2008). There are no protesting citizens' associations that support GMOs, only those that promote GMO-free labels.

Until the summer of 2010, the cultivation of GMOs was prohibited in the European Union and this prevented business interests from accessing the territories of member states. The sceptical attitude in Europe is understandable,

as the rationalisation of GMO industries' arguments involves policies that will legitimise certain groups by adding additional costs. For example, farmers' crops are not protected from gene transfer and are threatened by the cycle of the immunisation growth of insects. This ends in the withdrawal of legitimation of the goal values of the system (such as the right to a clean environment or self-expression as a private entrepreneur). The opponents of legitimising utterances, such as "consumers' will", are typically blamed for irrational and emotional communication, as they, being at the same time also consumers, irrationally resist the right of consumers to be provided with the goods of development.

Unlike the case of the oil shale development plan described in the article ON PLANNING (II), the administrative-political system was prepared for pressure (drawing on the experience of the US). Still, the lobbying of US industries in the halls of the European Commission was successful; they succeeded in breaking the central veto of the cultivation of GMOs in Europe. The European Commission's suggestion was to add to the directive 2001/18/EU a new article (Art. 26b). Its aim was to allow member states "*to adopt measures prohibiting, restricting or impeding the cultivation of all or particular GMOs & including GM varieties placed on the market, in accordance with relevant EU legislation on the marketing of seed & plant propagating material in all or part of its territory*."

The language of the text as an utterance was formed as a condition that permitted democratic debate over the object of risk. A supplementary clause, however, added the information value of the legitimation mechanism: "*provided that these measures are based on grounds other than those related to the assessment of the adverse effect on health and environment which might arise from the deliberate release or the placing on the market of GMOs or related to the need to avoid the unintended presence of GMOs in other products*." Therefore, actually the only measure that a member state can use to prohibit the cultivation of GMOs is to use ethical arguments, which have no influence in political-administrative practice. Ethical questions cannot be raised with the support of the system's steering media. They can arise only from the cultural opposition of the lifeworld. The example of GMO policy reveals that un-certainty is introduced into the social system in parallel with the institutionali-sation of consumerism (i.e. consumers do not pose questions about possible setbacks; they just consume). Following this line, the institutionalisation of consumerism may also be a sign of the rising degree of uncertainty and uncontrolled complexity in the system.

A system crisis can also manifest itself at the unconscious level when the complexity of the system, with the help of meta-concepts, begins to undermine the basic sense of security without any legitimate opportunity to express it. The article ON PLANNING (II), which concerns the environmental decision-making process, includes an example of the notion of home. This notion includes both an unconscious element related to the sense of security (i.e. something that is stable and recurrent) and a network of practical relations. It,

and especially its dynamics, cannot be described linguistically, but it can only be designated by the rather simple word "home". It exists through the shared experience of people who should understand what "home" is. However, this word is crammed into the process of environmental impact assessment, which is guided by meta-concepts (i.e. Habermas's generality claims): sustainable development, Section 5 of the Constitution, national interest, consumer interest etc. The mediated core values of the system are internally logical, yet they cannot rationalise the social reality of the lifeworld. The meaning of home is de-legitimised. Home is reproduced in development plans, consumerism and relevant projects that disguise the crisis of the lifeworld in the context of home. The institutions that have particular connection to the unconscious are de-legitimised in parallel with the institutionalisation of consumerism. This helps to explain how modernity operates in Giddens's terms. Growing complexity, with its demands for signification and legitimation, places pressures on the individual ability for reflection. It replaces the plurality of institutionalised practices with the standardisation of consumption practices. Although such institutions as family and home are still alive in discursively sophisticated routines, the institutionalisation of "compulsive" consumption practices is taking over.

The endless re-creation of the difference in autopoietic communication makes it possible for human thought to structure time and space and vice versa: human thought creates the social system in the partition of time and space. Both Habermas and Luhmann claim that capital is critical in this partition. Capital is needed because there is a time gap between payment and economic re-production. During that time, money as a means of communication has no meaning and urgently requires new legitimation, i.e. an exchange transaction. An example provided by Kaupo Vipp in the cultural weekly Sirp (2011) indicates that capital carries the function of the generalisation of time and space: the contextualisation capacity of both is decreasing:

"Sumerian metrology stressed the connection between barleycorn and the human body through the mutual exchange of energy. Barley (energy from food) gave life to the human body and ensured connection with the world; the human body (energy from work) gave life to barley and ensured connection with the world. In a normal year, a reasonable yield was considered to be 30 grains of barley returned for each grain sowed. The human body, a grain of barley and the world were linked through human hands. Each bend of a finger counted for three barley grains, each joint for one (with the thumb two grains in joints, and one with the tip of the thumb in the palm). [...] The human body as the earliest basis of numbers and calculation constituted a universal medium combining numbers, work/energy, mass, time and space. The basic unit of measurement of the sophisticated and ingenious system was the gin, corresponding in our system to approx. 0.5 m, 1/60 l, 1 m^2 or 9 g, or one value unit, the basis of the notion of money. [...] In the history of economics, the gin, a unit of measurement created by human work, reflected the energy of life contained in a

grain of barley, the smallest unit of weight used in trading the fruits of human work, and the basic payment unit."

For an individual to be able to communicate with others, he must be confident that the means of communication is functioning properly. In a developed society, people cannot have confidence in money because the physically measurable dimensions of time and space are gone (as is the physical form of money). There is the "frozen trust" (Giddens 1997), which can be analysed discursively only in the framework of the set of rules of signification used by social institutions. For the economic system to have meaning through money, it has to be determined in systemic preconditions.

Habermas argues that a political system must ensure that the value of money is organised in time and space, in a way that it can be reproduced. Therefore, the administrative-political power that gives meaning to capital is becoming increasingly differentiated. But, according to Luhmann (1989), the system has already surrendered the possibility of controlling communication agreements by legitimising the free market. This is where "double contingency" ends and the freedom to make decisions in uncertainty, without forming a system bound by the arbitrariness of the decisions made by others, begins. The result is an extraordinary increase in the tempo of communications. For example, there is increasing pressure to replace old technology with new technology, despite the fact that the old still functions. Based on Luhmann, the tempo of system communication has exceeded the degree to which it can attract the individual with difference: as the individual has no time for reiteration, communication contains only utterance, not information value.

The complexity caused by the increasing speed of communication results in over-communication, which has the same effect as silence.

In the context of everyday life, the world is created in utterances defining and distinguishing the world. Each utterance is a reaction to something, carrying information that can be subjected to analysis under the given systemic conditions. At the same time, little attention is paid to what is not said: to say something, the rest has to be left out. Problems in the expression of truth can also be found in what is not said, in non-communication. For example, according to the media analysis referred to in the article ON THE ENVIRONMENTAL CONSCIOUSNESS (I), the expression of ethical and ideological viewpoints was relatively high during the cowboy capitalism of the 1990s. This was a reaction to the silence that was imposed by rapid liberal reforms. The subsequent development of fragmentation diminished the role of ethical, philosophical and humanistic questions in media content.

Silence, however, is eternal. A system theoretical analysis does not say much about silence (Luhmann 1994), because silence is understood only in the context of self-referential reflection, not in the context of interaction between individuals (which is enabled by the social system or structural conditions). The system can interpret silence only in the context of active silence, in a context where the system chooses not to rationalise uncertainty. In a Habermasian free

discussion, it is probably possible to come closer to the truths of silence (e.g. the protest movements of the past that formulated their dissatisfaction with silence, i.e. non-communication), but the increasing complexity of the system may create barriers that do not make it possible to pay any attention to such silence. Still, complexity and fragmentation may also provide silence for individuals if fragmentation becomes the theme of the communication. Complexity creates silence regarding problems that are bigger than complexity (i.e. problems that cannot be addressed in a positivist way) because this would create too much controversy in the basic structures of society. For example, the social critique has no place in scientific journals oriented to problem solving and it is not possible to adopt decisions at a meeting of bank management based on the criticism of historical materialism, etc.

However, there are cases where the generation of active silence through increasing complexity may cause temporary turnarounds, and opposition to the silence. Mazur (1998) found that the flood of climate change news during the 1980s was caused by coinciding accidents and news about the environment (fires in Yellowstone, the Exxon Valdez, news about the ozone hole, biodiversity extinction, the greenhouse effect etc.). These upheavals of reflection of the late 1980s that connected different (functional) systems cannot be interpreted by individuals from the perspective of the shared perception of problems. In the article ON THE ENVIRONMENTAL CONSCIOUSNESS (I), I have lamented the fact that Estonians tend to look at the Phosphorite War and their liberation movement from an egocentric perspective, disregarding the global changes that allowed all this to happen. Therefore, the formulation of problems or raising awareness is not enough to solve the problems. Problems formulate themselves according to the configurations of a system (e.g. the magic phrase of the 1980s: "sustainable development"). Only the accumulation of the random mistakes of a system's development dynamics can have a liberating effect on the system.

2.3. System renewal and system overlap

How can complexity be reduced and meanings be brought closer to the immediate experience of individuals with time and space?

The fact that the modern society differs from the traditional or primitive society, which functioned on a different basis, does not nullify the differentiating and complexity-increasing nature of communication. A separate question is whether Luhmann's *other-reference* or Giddens' *formulaic truth*[15],

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[15]   Giddens (1997: 64): "Tradition involves formulaic truth, to which only certain persons have full access. Formulaic truth depends not upon referential properties of language but rather upon their opposite; ritual language is performative, and may sometimes contain words or practices that the speakers or listeners barely understand. Ritual idiom is a mechanism of truth because, not in spite, of its formulaic nature. Ritual speech is speech

which is understood as a reference to something that is neither self-referentially nor functionally comprehensible, is possible. Transcendence is, in Luhmann's interpretation (1989), a type of communication that restricts the communication of indigenous people, thus ensuring the ecological tolerance of culture. It is impossible to argue about mystical predestination, especially if it does not submit to the rules of cultural arrangement (as in Protestantism). Yet, such submission must be a system phenomenon.

The ability to reflect is limited by the preconditions of the system and vice versa. The communication of indigenous people is inevitably determined by nature. It is determined by time (seasons and the length of human life) and space (material resources and territory), in which each action is linked to the social system. Actions must refer to the principle of the continuity of the social system (although the idea of the continuity of communication probably cannot be formulated in the lifeworld); the physical environment and available time must be linked to meaning directly, in personal experience. A primitive group of humans cannot take the risk of examining the laws of nature under complex conditions because the transfer of meanings by rituals, storytelling, etc. is very time-consuming. Referring to *formulaic truth* through the person of a shaman was, therefore, very rational. This reduced the need for reflection, which would have jeopardised the survival and interaction capacity of a small tribe, and organised time, thus allowing meanings to organise themselves (i.e. meaning as a contact point between interaction and the social system), creating a new basis for the renewal of the system without increasing the need for reflection (difference) and helping to manage the repetitive practices which had lost their meanings.

Although Luhmann sees religion as a subsystem that refers to God and whose code is *immanence/transcendence*[16], in my opinion *transcendence* is, at least in the case of primitive peoples, a restart programme of time. When the ancestors of the Estonians allegedly decided to go to war based on which side a slaughtered ox fell, this was primarily the practice of time coordination, which gave meaning to communication. In a situation where the possible recurrence of a situation would be too far away time-wise to offer meaningful communication about difference (e.g. in a discussion of historical experience between elders), there is a natural need for contact with *formulaic truth*. Where the social system does not allow extensive learning due to low reflection capacity, there is a good opportunity to restart the integration of the system. A complex system offers

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which it makes no sense to disagree with or contradict – and hence contains a powerful means of reducing the possibility of dissent. Formulaic truth is an attribution of causal efficacy to ritual; truth criteria are applied to events caused, not to the propositional content of statements. Guardians are believed to be the agents of the causal powers of tradition. Their arcane skills come more from their involvement with the causal power of tradition than from their mastery of any esoteric knowledge."

[16] Luhmann's unfinished book *A Systems Theory of Religion* was published in English only in 2013 and I have not yet had a chance to read it.

great learning capability, yet its ability to restart time, which could reduce complexity or overlook system goal values, is limited. This time reduction effect is essentially still valid, functioning through strategic management and policies, but it lacks a liberating effect because the rituals that would offer access to *formulaic truth* are not used. Therefore, discussions of the natural environment move away from the experience that remains "outside the system".

The evolving of a simple system into a complex one is a natural process. What confuses the picture is the exposure of the system to other social systems. Systems cannot be transferred or assimilated. A different system can be understood only through projection, which recognises the other as sovereign, subordinate/subordinating or one that can be ignored, that one can be silent about. Although subordinate and subordinating social systems are likely to include functional systems that use similar codes (e.g. environmentalism in different countries), these functional systems do not merge, but create new functional systems, which further develop the reproduction of the difference between the systems. However, functional systems cannot control the environmental conditions that trigger the performance of their functions. For this, individuals are required. In the context of a subordinate system, it is inevitable that individuals adopt double standards and relevant practices of signification that give way to the operation of the codes of a system. There are practices that fulfil the needs of general system integration and practices that give meaning to the motives of individuals. Functional systems of a sub-system, such as Estonia in the European Union, cannot have double codes because this would result in system-theoretical nonsense. Only the lifeworld can interfere and let situations appear as through double-coding – in favour of both systems - by applying the code of the main system at the level of utterance, and the code of the subordinate system at the level of information, and vice versa. The behaviour of a functional system (e.g. education, law or media) in the context of a main (EU) and sub-system (Estonia) depends on the needs that have been actualised in the lifeworld if the complexity of the social system makes this contradiction possible. A good example is the problem of policy-making, as well as the project and reporting culture in Eastern Europe, described in the article ON THE ENVIRONMENTAL CONSCIOUSNESS (I). A similar application of double standards was common in Estonia during the Soviet era. For example, former "phosphorite warriors" (Sikk 2013) admit that the local industry, which reported to Moscow, intentionally exaggerated the environ-mental impacts in public communication in order to increase general anxiety, which boosted the independence movement and opposition to Moscow. On the other hand, under the cover of the climate and energy policies aimed at Europe, the fortress of sustainable development, attempts have been made in present-day Estonia to develop the wasteful and inefficient oil shale industry.

It is possible that in functional systems that are susceptible to an ecological crisis the internal resonance will become so strong that it will lead to turbulence in other functional or sub-systems. It is important to understand what types of

connectivity between system communications take place in a situation of such turbulence that trigger new meaning-searching debates between individuals. Such a dynamic is briefly described in the article ON RISKS (III). It appears that dissatisfaction with the generality claims of the system creates a new basis for seeking solutions in interaction between individuals. It is possible that unexpected configurations that reduce complexity will emerge in this interaction: after all, a social system needs individuals to develop. It may be that the movement of Estonia to the West took place in such a calm manner because of the systems and individuals' inability to rationalise the West. The Phosphorite War and its mythical stage (Lauristin and Vihalemm 1997) functioned as an experience of *formulaic truth*, which restarted time and cancelled previously legitimised meanings, therefore reducing the opposition to system legitimation and beginning the new process of signification. Later, at the end of the nineties, the motivation of the requirements of the lifeworld in the administrative-political system gathered strength, but those were hindered by the overlap of the systems.

2.4. Main conclusions from the attempts of institutionalisation of environment

- Environmental values and issues can be understood only through communication and its conditions, because individuals have no understanding of the intrinsic value of nature and the environment. Even direct nature experience has to become an object of communication in order to understand it.
- Both the communication of a social system and interaction between individuals can offer only a distorted picture of time and space, and the events structuring them. But it is precisely the systematically created distortion that helps individuals to understand the environment.
- Despite an infinite amount of communication, concern about the environment becomes too burdening for the institutions of society at a certain stage of complexity. This leads to communication through silence, i.e. to a decision not to deal with the rationalisation of certain problems (e.g. concerns of local people). The dynamics of silence develop according to the maturation and learning of the system. For the individual, the complexity of communication may also provide silence, as it loses its contact with the lifeworld: the use of meta-concepts, no time for reiteration, and utterances instead of information.
- In understanding the environment, relations with social institutions are inevitable because they provide a common set of rules for individual interaction. This helps to resolve the conflicts between the everyday experiences of individuals that arise from different patterns of socialisation in the structural relations.

- Communication of environmental issues is not possible without mutual interaction between functional systems (education, law, economics etc.). Mutual connectivity between functional systems through coding makes the discussion of environmental issues complex and such complexity cannot be reduced intentionally.

- Focussing on environmental values in decision-making progressively increases the complexity of the system because environmental issues are unquantifiable. To do so, nature needs to be treated as a resource (in the Giddensian concept) or as the steering medium (in the Habermasian concept). In such a case, environmental value becomes universal (as money has) and loses its meaning in relation to natural processes.

- Complexity does not allow reaching fundamental environmental agreements and principles, such as in Section 5 of the Constitution, to be introduced in discussions. Complexity means that, due to the ruling instrumental approach, there are fewer chances for deviations that would anchor the contradiction between social experience and system prescriptions. The issues of nature and the environment are, however, sensitive to social context; although the instrumental approach is internally logical, it cannot explain changing contexts or the social nerve.

- Consumerism is an institution that is unable to dissolve and unify other institutions. Consumption legitimises uncertainty through routinisation. Although participation processes enable new meanings to emerge in the context of the social system, they are unable to reduce complexity. This means that, in parallel with fulfilling democratic ambitions, they help to colonise the lifeworld with new abstract requirements.

- The subordinate and subordinating systems cannot communicate simultaneously, but only one at a time. Therefore, there are different truths in both systems and the lifeworld can enforce communication in one or the other. The complexity of the system can be reduced by mistakes in system reflection, which may emerge with the increase in tempo and disturb the order of the algorithm of the unitas multiplex, but also by individuals who, for some reason, ignore institutionalised rules.

2.5. Formation of meanings of the environment

II Why are individuals unable to converge around environmental issues?

Why can't we discuss how to improve our society? Habermas and Giddens demand a dialogue and democratic debate, and it seems that we have that, maybe even more than necessary. But tensions are not relieved. It is not the lack of freedom of speech that irritates present day activists, but the fact that there are not enough people who listen to them. What is the problem? Theorists

believe that the gap between interaction and society has become un-precedentedly wide and deep. The traditions born out of repetition have lost their power. Does the complexity of a system also express itself as changes in the reflection mechanisms of individuals? Can individual reflection initiate or direct changes in the system? I have analysed the positions of the above-mentioned authors on these questions.

Habermas (1976, 1989: 137, 140, 183) states that the fragmenting influence of the steering media disrupts the cultural reproduction of the lifeworld, threatening the continuity of tradition and the coherence of the knowledge necessary for coping with everyday life. This puts the individual's motivation and ability to act at risk, diminishing the ability to engage in the communication necessary to cope with uncertain situations. According to Habermas, socialisation or system integration alone is not sufficient, but he fails to define those "given" and threatened elements in the lifeworld that are inevitable in order to ensure the individual's communication capacity.

Based on Giddens, whose approach to individuals is socialisation-centred, we can assume that individuals may not necessarily ask themselves the critical questions arising from the colonising influence of the steering media because the reflective capacity of individuals is realised through worlds that are more accessible to them than is required for the analysis of the system. What an individual knows about the world cannot be separated from his world. Similarly, individuals have some knowledge about how to behave when the familiar environment begins to blur. It is possible that the world, which is becoming more and more complex, is creating its own practices of the implementation of discursiveness.

In addition, Luhmann (1995: 418–419, 430–436) does not believe that meanings can disappear; otherwise, both interaction and society would also vanish. From his viewpoint, the social system does not limit the meaningful choices of individuals, or the opportunities to diverge from those choices; it just attracts individuals with what is easy to agree with[17]. Thus, the complexity of the system does not bother an individual who is using first-order observation (the reasons why individuals opt for a first- or second-order observation are explained in the article ON RISKS). Comparing Giddens with Luhmann, we can assume that a second-order observation (discursiveness) is used when the practices of realising the complexity of the system become too burdensome for the body and unconsciousness of the individual, whose time and space resources are limited. If certain types of practices start to dominate in the context of the colonisation of the system, the unconscious needs of individuals may find no relief. They just do not have the time for the necessary practices. It is also possible that certain practices lead to an institutional dead-end: at a certain point they become useless and their rules and resources cannot be transferred to alternative social relations. For example, the practices of the

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[17] Cf. Elizabeth Shove (2010) on practice theories: practices recruit practitioners.

natural economy do not enable individuals to sustain themselves because industrially produced food is much cheaper and the barriers to the entry of industrial food into the market are much lower. Nowadays, agricultural producers are required to know how to prepare business plans, manage projects and sell their products, use appropriate amounts of chemicals and use modern technology, in contrast to the way that natural processes work. The practices necessary for making ends meet do not leave any room for additional practices that would protect the environment. At the same time, the lack of natural raw materials and industrial-scale production frustrate people. How can the tension be relieved? The system and individuals are still mutually related.

If the semantic field of the lifeworld clashes with the system, it should, in Giddesian terms, take place through certain discursive beliefs or practices (or the lack thereof, e.g. abstaining from voting or making a purchase). Because an individual is socialised into society and involved in its integration through his practical life (an accomplice), he cannot be opposed to himself as the reproducer of the structure. Without discursive observation, it is difficult for an individual to see himself as the source of the problem because he is participating in society through the normality of his routinised practices. He can "clash" only with the world that is no longer normal and that differs from the previous life-experience of the individual, i.e. with the practices of other individuals or institutions. Although individuals are connected with each other through everyday relations, they do not necessarily understand the ways of life of other people and their reasons. In practical awareness, the problems always lie somewhere else, not in the practitioners' actual practices.

When lifeworlds diverge, members of society have an opportunity to see the world from very different perspectives and through different types of relations. While these relations are brought together, they are incompatible and cannot be merged. For example, an environmentalist can combine his truth with that of an entrepreneur only through system integration because there are no short-cuts to understanding and solving problems between them. Therefore, the oppositions of the lifeworlds are solved in societally legitimised practices, so practitioners may not even be aware of their opposition. For example, environmentalists' everyday routine is based on project management, and the bureaucratic systematisation that takes up most of their time has, for the bystander, no particular relation to "natural" nature and environmentalists' critical ideology. The same phenomenon is seen in the analysis of the article ON PLANNING (II), in which the environmental process itself appeared more important than the environmental issue in question.

Although the practical activities of individuals are arranged according to the freedoms and restrictions of social integration, they may not necessarily offer individuals enough motivation to act (everybody is fed up with project management), and vice versa: it may be difficult to find a discursively satisfying practice to alleviate anxiety.

Giddens (1997: 70) has stated that there is no truth of tradition left in the practices of modern society; all that remains is compulsiveness, which is in effect tradition without traditionalism, just an emotional drive for repetition, and that nobody has a clue as to "why this endless treadmill". While in a traditional society it was accepted that truth couldn't be tested discursively (truth was managed by a guardian who had direct contact with *formulaic truth*), today individuals are compelled to be reflective and to pursue the truth, despite the fact that with each attempt the truth becomes more and more imperceptible. The need to be constantly reflective in order to make personalised choices may, indeed, lead to a Habermasian motivation crisis and fatigue, as the only thing that is certain is the specific positivist practice of reflexivity, which tries to combine and separate similar pieces of information into something new, yet still similar. For example, every day articles are published in the media containing similar recommendations for more environmentally friendly lifestyles, but these recommendations are never followed in real life. Giddens does not offer a sufficient explanation of such monotony. It is better explained by Luhmann.

According to Luhmann (1995: 418–419, 430–436), meanings are not fixed to specific interactions, thus allowing meaning-based distinction in society. Communication is guided by difference, which is perceived as the non-identity of society and interaction. The social system enables the participants in interaction to divide time into episodes and this helps them to perceive the freedoms and restrictions that are not found in the interaction itself. The increase in the pace at which differences are produced diminishes individuals' ability to learn and control, so all that is left is a compulsive and endless desire to control.

Time-systemising repetition becomes a topic of culture (a need to keep pace with time), but it is impossible to discuss its causality because there is no relevant authority or holder of truth. Repetition that determines differences requires individual practices in order to be realised. Based on Habermas, Giddensian compulsive behaviour may be an attempt to motivate the requirements of the economic system in the lifeworld. This gives rise to a consumer culture and attitude and also to the need to be active in the increasingly complex world in order to ensure the reproduction of capital. But consumers with similar preferences (e.g. environmentally aware consumers) and environmentalists can "unite" only through the perception of similar differences, which, in turn, unmasks the demands of the legitimation of the economic system, presented as environmental.

The article ON PLANNING (II) also concludes that community identity is born from opposition to the challenges of a system, i.e. it is based on the perception of similar differences and is ready to change in response to challenges. The article ON CONSUMPTION (IV) provides an example of the Russian diaspora in Estonia, whose identity, which is oriented to consumerism, is a response to the closedness of the social system. Although the lifeworld of the Russian diaspora is weakly connected through the practices of opposition

and eclectic media consumption (Vihalemm & Hogan-Brun 2013), Russians can perceive common differences in terms of their integration into the system, i.e. the perception of rejection. The same phenomenon is seen in the focus group analysis of the article ON RISK (III), in which the cut-off Russian diaspora formulate a collective solution to the situation, contrasting themselves with the colonising messages of social institutions. The article ON THE ENVIRON-MENTAL CONSCIOUSNESS (I) points out that the united front of the Estonians during the Phosphorite War and the heritage protection movement emerged in opposition to the Soviet system. When the latter fell apart, the uniting motive and feeling of solidarity disappeared. Next, I will ask: can the lack of meanings as a similar, anxiety raising difference unite individuals and thus send a signal to the system?

2.6. Anxiety and converging

Luhmann, in his book on ecological communication (1989), treats anxiety as a motivator of social movements. Anxiety that is born from the perception of incompatibilities in society cannot be suppressed or alleviated by money or religion. The codes of functional systems do not apply to anxiety and an individual may feel anxiety without the fear of contradiction. This creates a fertile ground for the rise of topics related to anxiety (such as concern for the environment). However, anxiety also needs to be regulated, and guidance is required on how to deal with it. This requires a definition and a relevant practice. Again, the integration of the system is required. Anxiety was discussed in the article ON RISK (III). It appeared that it was difficult for individuals to give a name to anxiety, in particular because industrial risks were not yet institutionalised in Estonia (i.e. risks were not publicly recognised). The lack of institutionalised risks was perceived as active silence from the system, which increased anxiety. If a risk becomes real before people are even aware of it, that means that no preventive measures are taken by institutions and this decreases trust in institutional reassuring communication. Therefore, anxiety is a phenomenon of communication, not of the selected topic.

Anxiety does not explicitly reveal the source of the anxiety. Anxiety is perceived in structurally open conditions, for example attracting either environmentalists or those who are concerned about food risks. These groups are united by one thing (Luhmann 1989: 125): they give meaning to their actions through the social system, which distinguishes them from the society as the excluded ones (based on the code: included/excluded) and what develops as they become the included excluded. This kind of identity was also a basis for the formation of the risk strategy of the Russians in the article ON RISKS (III).

According to Giddens, more attention must be paid to which social systems the practical activity of the environmentalists can be understood within. It appears that an environmental protection organisation that has legitimised itself

as opposing the system also realises itself by using rules and resources that amplify structural features: essentially as an extension of the political-administrative system and a translator of legitimation attempts into the lifeworld (Sõerd, forthcoming). Their opposition may exist only at the discursive level[18].

The appearance of anxiety can be interpreted by using Giddens's human body-centred approach. The economic system has to legitimise itself for individuals but the human body sets restrictions on this process. You cannot drive several cars or eat several dinners at the same time. Therefore, in order to rationalise itself economics is forced to create new meanings that can be expressed in the act of payment/non-payment. For this purpose, economics needs to find a way into the Habermasian lifeworld of individuals by reducing economic independence and replacing its components with suitable services. Here the practice that is valid is payment, not existence, such as saving money or an environmentally friendly existence that abstains from consumption. An individual may become anxious if he has to adapt to too many services in order to save, or if he cannot use those services because they are too expensive: spending to save contradicts common sense.

Besides participating in social movements and making conscious consumption decisions, an individual can relieve his anxiety by acting as a citizen. The political practices of an individual are realised in a way that rationalises new possibilities for the economy. This is done in the course of unconscious everyday practices (e.g. being involved in the development of education, science or law) and also by taking part in administrative-political debates. The participation practices related to the latter legitimise public discursive beliefs: for example, voting or participating in discussions, such as the discussion of the development plan described in the article ON PLANNING (II).

Participation processes are structural situations in which linguistic processes help people to arrange their anxiety internally in the context of a system's rules. In participation practices, new situations are legitimised linguistically, an occurrence which may not be possible in real life. For example, the notion of sustainable development is nice but it is possible only within system communication. Arguments related to economics, nature and society have no

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[18] A study of the practice that has become central for citizen's associations – project management – showed that the activity of citizens' associations is very little connected with the bottom-to-top legitimation of the lifeworld (because of anxiety that is born from the opposition to the system projected in Luhmann's approach). The objectives formulated in the articles of association exist linguistically at the level of utterance. Instead of being ready to react at a critical moment when the values of the lifeworld are at risk, the project managers of the organisation are busy arranging their projects according to institutional rules. Project managers are recruited by international cash flow to cooperation with organisations for whom the main criteria of selection is the skill of managing time and budgets. The shared lifeworld and its basic values as the basis of an ideological approach are not the basis of international integration. Therefore, citizens' associations do not have the capability of the legitimation of critical discussion.

common denominator and, therefore, involvement in those arguments would require endless comparisons. However, as Luhmann says, we see the world only through first-order observation, and second-order observation is too much. The increasingly frequent participation processes are a priori good in the positivist paradigm, but in the critical paradigm they are signs of crisis. According to Luhmann (1993:154), participation processes indicate a loss of confidence, rather than a means of gaining confidence. If individuals protest against not being listened to, the problem probably lies not in not listening but in increasing unconscious anxiety, as the linguistic solutions achieved in participation are not able to loosen structures.

This conclusion is consistent with the peculiarity of the risk society pointed out by Beck (1986/92, Beck & Beck-Gernsheim 2002): accelerating time requires reaction without time shift (reflex). Life experience loses the possibility of testing different situations in practice and seeing what works and what does not, because it is impossible to "communicate" time (in linguistic logic, interaction is simultaneous). But time is what is needed to overcome the paradox of communication mistakes (we cannot describe reality; the only thing we can describe is the difference as compared with the prior situation). When people react to differences by acceleration, it is difficult for them to realise the truths of their practical and unconscious experience. Therefore, they tend to overreact because the practice of resolving differences requires the creation of an additional practice that aims to solve the identified problem (less often the reshaping of the old practices). This limits individuals' time and space and creates an increasing need to deal with side effects etc. This forms the basis of the snowball effect. Control over the dynamics of anxiety will be lost and offering an opportunity to participate no longer works to relieve anxiety.

The articles ON PLANNING (II) and ON RISKS (III) emphasize that individuals' emotions may be a good indicator of moments of system colonisation. As the "urgent" colonisation demands of a system are always internally logical, the emotional side of the individual may succumb in the contradiction to them. Therefore, the human mind must be able to express linguistically its unconscious motives in order to resist colonisation. Next, I will focus on the question of whether and how language can express anxiety and direct changes.

2.7. Capability of language to communicate anxiety

Communicative interaction between people does not convey meanings directly, although we expect this to happen in the everyday context, in which it seems that we understand each other. For Giddens, language use is a practice that is structured through socialisation and the requirements of everyday life. According to Luhmann (1995: 150–153, 272–275), language use is neither thinking nor communication in which the world comes to life. An utterance

always has another, informative side. The difference between and dependence on information and utterance also help to explain meanings, by conveying a message when the world is not holding together naturally but only with the help of communication. Information depends on the observer. Therefore, language is a means of system integration despite being only a distortion of the world and unable to express it as a whole. The world remains a difference that depends on the practice of using language (e.g. in a planning meeting, art, poetry or intimate private conversation).

In addition, language always indicates different things for different language users because it separates time and space for each user differently. The meaning of linguistic expression, in particular of the text, which can be read over and over, constantly changes. If something is firmly claimed by relying only on a text, the structural relations on the basis of which the meaning was created at a given moment of time are denied. This is seen in political processes where meanings are expressed not only in linguistic but also in numerical terms. The bigger number abolishes the meaning potential of the smaller: for example, a numerical limit determines the safe rate of pollution. A study conducted by Spee and Jarzabkowski (2011) on organisational strategic planning showed that the practices of integrating oral and written discourses in the course of the communication process made a document more authoritarian and participants, in particular those at lower levels, had to constantly make concessions regarding their visions of the future for the benefit of the leaders of the process. Colonisation occurs through the creation of meta-concepts that bridge structural relations.

The adjusting of language practices to the conditions of structuration (in the Giddensian approach) is the reason why we cannot assume that Habermas's ideal discourse is unlimited or that participants can be included in a discussion as equals. The situations of interaction are always designed, not only in terms of the topic or participants, problem proposition or ways of directing the conversation, but also in terms of structuration mechanisms that predetermine their own hierarchy through language (however, hierarchy manifests itself even earlier, in the possibility of linguistic interaction). We can speak of the freedom of speech or the "glasnost" effect only as examples of the designs of the situations of interaction that creates their own symmetry and asymmetry (in Luhmann's terms) and enable us to interact with each other at all.

Language always leaves the other side unpresented, representing what exists and opposing it to something that could exist but actually does not. It is the aspect of silence that is most difficult to analyse in linguistic interaction and is actually only sensed contextually. The rules of institutional speech (Jaworski 2005) may assume the introduction of silence. It may be practical (e.g. order of speech) or metalinguistic (e.g. drawing attention to the meaningful aspects of speech) or aimed at establishing power. Jaworski points out that meaningful silence occurs in situations where an individual cannot say anything (yet) or does not know what to say (e.g. news is delayed), and also in situations where

the important vocabulary required for expressing meaning is missing. While Luhmann speaks of active silence (1994) as something that requires the system's attention (but does not receive it and is still perceived as communication through active silence), Jaworski stresses the inability of language to express everything that is perceived. This means that many phenomena that cannot be expressed linguistically still play a role in guiding the meanings of a conversation and, vice versa, they have a meaning but are denied their natural role of correcting interaction due to the power discourse (Habermasian culture elements). The article ON RISKS (III) also speaks of commonplaces as a means of overcoming anxiety caused by uncertainty: language helps to overcome unknown situations, but also to construct situations that do not exist (various risk calculations that are never realised and exist only in documents).

While the article ON THE ENVIRONMENTAL CONSCIOUSNESS (I) refers to the Soviet era and its censorship (which created new practices of information consumption: a significant, yet telling gap between information and utterances), today we cannot speak of a very new or different situation. The information presented in the Soviet era was made understandable by double standards found in interaction and the fact that system coordinates were in place (Beck claims that nowadays the system coordinates are also changing). However, this is not the main precondition of the functioning of communication (that communication concerns differences) that has changed, but the nature and stage of organisation in which people can interact.

In a structurally tightening context, the possibility of asking questions (e.g. how to protect the environment) is inevitably restricted to an increasingly narrow context.

The media analysis referred to in the article ON THE ENVIRONMENTAL CONSCIOUSNESS (I) shows that Estonia is moving towards a situation where environmental meanings are understood in a very narrow social context. Because of the structural preconditions and the logic of development, people are forced to leave behind their direct perception of the environment and replace it with one appropriate in a modern society (the discourse of climate change instead of direct nature-experience and practices of the natural economy). This means that linguistic practices are also being replaced and the linguistic reproduction of certain nature experiences is likely to become impossible. This does not mean that people will stop going out into nature, only that the meanings will be different, e.g. an aesthetic garden (a "pleasure" garden) instead of a functional one (an allotment garden).

Linguistic expression is practically simultaneous, but for the emergence of meaning a shift in time and space is required. If there is no shift in time and space, no meaning can be created because it can only be born from difference, at the point of contact between interaction and society. Because communication cannot stop, it may happen that it will occur through "empty" repetition, imposed through structuration mechanisms on the rest of life practices without

the ability to question the lack of meaning. Even if they were desired, there are no linguistic practices for that because those are also concentrated in an increasingly rigid power structure (how else could such a legitimate poetic expression as "winning the trust of the markets", etc. emerge). The growing abundance of consumer-oriented media texts shows that there are linguistic translation practices (and people behind such practices) that translate the diminishing bits of environmental information into a language that follows the code of the economic system (economic man). Such texts are based on repetition and do not carry any new information except for the repetition itself. There is a certain type of media addiction whose unconscious mechanism is the anticipation of breaking news (truth). The same applies to environmental behaviour: in order to participate in society, one cannot discard exhausting reflexivity.

2.8. Main conclusions from individuals' opportunities to converge

- Individuals' anxiety and anguish are born not out of immediate observation of the environment but out of an unconsciously perceived conflict that will be reflected by and shaped to practices that are understood in system communication. At the same time, the found or proposed solution may not relieve the perceived anxiety.
- The meanings of environmental issues become topical for an individual as distant discursive questions because after having been socialised into society through personal practices it is difficult for the individual to judge himself. Opposition to the problematic world occurs when its complex colonisation claims start to challenge the individual's body (it is impossible to be in several places at the same time and to act in different times) or his unconscious.
- Structuration fragments the world of individuals' rules and resources so that, despite being mutually connected through citizens' associations, shopping or educational choices, the repertoire of individuals' common choices becomes narrower and narrower. It is their physical ability (the use of the body in time and space) that forces individuals to make choices (e.g. to bake your own bread or to have a well-paid job and buy organic foodstuffs). At the same time, certain reflection practices are harmonised, e.g. the development of consumer and information sharing cultures.
- Individuals understand environmental issues through difference and repetition. Difference gives meaning to problems, through comparing them with the identity of society or the individual (How environmentally friendly am I?). Repetition provides the basis for difference: if nothing was repeated there would be no meanings. To understand difference and perceive repetition, time and space experiences have to alternate. Accelerating speed

jeopardises those conditions. The growing need for reflexivity and the perceived contradictions in environmental messages may jeopardise the individual's motivation for environmental practices and discussions.

- Individuals unite to solve a common problem based on similarly perceived differences: for example, based on similarly perceived silence (our concerns are ignored) or the ambition of institutional communication to colonise the lifeworld.

- The interaction between individuals with regard to decision-making is linguistic. On the one hand, language can abstract, distort or give meaning only through the social system. On the other hand, the lifeworld is colonised through language practices that attempt to assimilate and combine different structural problems. Participation processes and discussions create numerous meta-concepts that colonise the lifeworld further.

In the conclusion section of the dissertation, I will combine empirical analysis and theoretical discussion in order to interpret the processes that have occurred and are occurring in Estonia.

CONCLUSIONS

The objective of this paper is to identify the conditions required to ensure that communication of environmental issues through reproduction would not incrementalise but instead would enable individuals to find better solutions to environmental issues and risks at both personal and collective levels. The empirical analysis helped to bring out the theoretical insights and possibilities that had not been emphasised by the theoretical authors themselves. The theoretical analysis helps to understand the logic of the change and give value to the empirical data. It appears from an empirical analysis, which was based on the studies on the communication of environmental issues and risks over the past 25 years, that environmental topics have fragmentised – which is characteristic of late modernity – and that environmental issues have become more complex at the level of public communication, at the institutional level and at the level of interaction between individuals' life experiences and institutional solutions. Based on a theoretical analysis of the empirical conclusions inspired by system and structuration theories I will provide answers to the research questions. At the end of both theoretical conclusions there is also the example of the Estonian experience.

I Why doesn't the institutionalisation of environmental issues in complex societies offer solutions without rebound effects?

It was mainly the Brundtland Report (1987) by the UN that legitimised the goal of sustainable development in public communication. This ideal aimed to combine three domains of public discourse – environment, economy and culture, most recently, however, also politics. In terms of the theories of structuration and social systems this aim involves enormous challenges. In terms of Habermas the problems lie at least in two domains – the possibility of the advocate of the outer nature of the society such as nature that cannot speak to her by herself, and the colonising influence of the political-administrative system that introduces such meta-concepts to the lifeworld in order to legitimise the motivations of the economy. According to Luhmann, the issue is not about ideal discourse. In his view meta-concepts as public utterances cannot represent information about situations where the aims of different parties are merged. According to Luhmann every functional system of a society is opposed to any other functional system, although being also in need of them to develop.

To "merge" the ideas and three (four) fields of sustainable development, there should be the possibility to communicate those fields in whole and at the same time. However, in a social system the decisions concerning alarming communications from different fields can be made only separately, one at a time. The reason here is in the fact that communication in Luhmann's terms begins from the differentiation of the unknown, not from the search for similarities. Therefore, the difference between different arguments always

remains and is also the cause of the continuation of the demands emanating from each field participating in communication.

But the problem does not lie only in the everlasting difference between function-systems. In the globalising world, especially in Europe, there are many different states that are found on different preconditions (in Habermas's term, goal values), but still joined in one superior system such as the EU and several constellations. Here too the difference between superior and subordinate system remains; these systems do not merge.

According to Luhmann, communication in a social system cannot proceed simultaneously from two types of power-relations, such as an educational and economic system or super-system uniting multiple countries and national democracy, nor alleviate the tensions between them. Integrating different social systems without assimilating one into the other is possible by exchanging viewpoints in time and space. For example, Estonian institutions either agree with the EU climate policy or protect the interests of local polluting energy producers – it is impossible to do both at the same time, despite linguistic utterances, which claim that it is possible (sustainable development). But as demanding communications from different parties are simultaneous, this enables us to apply double standards. By utterance a decision that is made in the interests of both parties is, in fact, by information made in favour of one authority.

Such double standards enable the identity of society to survive as the development of utterances in a manner that they would exactly respond to different informational contexts would incrementalise the lifeworld level and would make the ability of understanding between individuals impossible. This is the reason why at the lifeworld level the meta-concepts are only declarative (utterances, not information). For example, Article 5 of the Constitution of the Republic of Estonia stresses, at the linguistic level, the sustainable use of natural resources, but in real life its impact may be assessed differently.

The magnification of double-standards happens especially in the context of the globalising world – e.g. in the communication of different function-systems in the context of communication of superior and subordinate systems. Double-standards exist naturally in the lifeworld view, not in system communication. According to Habermas the system integration requires a legitimising discussion at the lifeworld level, as the system is based on its goal values. In the context of subordinating systems (in the example of nation states) this connection of legitimation will disappear, as a superior system needs, in order to survive, interaction with a subordinate system, but not so much the lifeworld. This will increase the distance between the lifeworld and the system.

However, for Luhmann, the system needs no goal values, but only the coherence of inner rationality, and interaction of different systems that act as environments to each other. This provides a new fulcrum for instrumentalisation, which is a challenge for the individuals also in Luhmann's approach. Luhmann has called the interrelation between systems *unitas*

multiplex – functional systems do not merge, they just create new differences and the logic of its sequence remains elusive. Still, can the logic of *unitas multiplex* be found?

The article ON PLANNING (II) deliberates about whether social institutions can have a memory of their own, a memory of their hierarchy of coding between functional systems that will be applied uniformly to similar situations. What is the guarantee of its continuation? Luhmann speaks rarely about the individual, although he agrees that the social system needs individuals for existence and vice versa. Institutions however function through the action of individuals. Here Giddens' approach to agency will contribute an insight. Although his approach to individual socialisation through constant reiteration of conduct is not unique, here his approach to practical consciousness as the function to avoid anxiety is useful. The social conduct is routinised. The established (power-) relations on the one hand and personal time and space on the other hand shape the continuation of routines of how and on what kind of signs of anxiety to react to. In the context of complexity – as long as the routines fit to personal space and time, the logic of *unitas multiplex* should be continued. For this reason, the separation of the conditions of the time and space are crucial. Therefore, the increase in complexity is in large part the cause of the reflexivity and routine of everyday practical life. Can we find however other types of practices of reflexivity by reflecting on those?

Giddens' structuration theory reminds us that the meaning behind routine action functions as a given and unquestioned truth, therefore, it is very difficult for the individuals to define themselves as a problem in the overall picture. Also Beck finds that as the causes of environmental pollution are the institutionalised actions of the society, these can't be institutionalised as the sources of the problems at the same time (at least by the institution itself). Therefore, it is logical that individuals use their discursive potential only to analyse the 'others' practices that are visible in communication. Here we find that the opposition of the lifeworld to the system (Habermas' approach) cannot be solved as this opposition at the agency level is directed against another agent. Common opposition to another "other" can ease this opposition. However, each of this kind of opposition will increase the need to look for differences and therefore also reflection, increasing also the complexity of the system.

Intentional simplification of the system is impeded by the socialisation of individuals into the modern world, whose meanings and practices enable rationalisation only through practices that are legitimised within present day conditions. This adds to the complexity, not to the reduction of the system. In order to simplify the system the expected order of the hierarchy of *unitas multiplex* should be disrupted. This would allow unexpected institutions to emerge (following the logic of the functioning of a social system, of course) and simplify the practices that are today legitimised as the only possible ones.

In Giddens' approach individuals' personal time and space that is left for their routine behaviour may be important. Due to the lack of personal time and

space in the increasing complexity the breaking with traditions and changes in the routine may, in principle, lead to fluctuations in both functional systems (such as politics, law, science, education, economy, etc.) and superior or subordinating systems. This may change the ways the system is reproduced (*unitas multiplex*) because the fluctuation causes too many mistakes in system rationality, which will restart it in order to find again the differentiation between the environment and the system.

The possible fluctuation in the system will oppose the lifeworld with new problems, which will cause the change in Habermasian goal values. Communication can give a meaning only in relation to something. For example, the opposition of the lifeworld and the system during the Phosphorite War created an input for a new communication system. At the linguistic, utterance level, nationalism, sovereignty and values of nature were given a central role in the new Constitution (laying down the main values of the system). Therefore, the memory of lifeworld is shaped together with the fluctuations of the system. However, total simplification is still impossible, as institutional memory through the practices of individuals survives even if the regime changes.

The social system can avoid incrementalisation also by the activation of the lifeworld. This means that individuals acknowledge in their discursive consciousness that the way they use their time and space captures a political choice. Therefore, the lifeworld can force an option for the social system to choose a more convenient communication in the tradition of the *unitas multiplex*. For example, the social system can use 'blind spots' in rationalisation of other systems, decreasing the connection with them at the informational level, although the ties remain at the utterance level. For instance, in the help of the lifeworld and for the lifeworld it is possible for a subordinate system to appear as the contradicting system to the superior system if needed and vice versa, legitimate part of it.

The vacuum of meaning during the fluctuations period can be filled also by the *other-reference* (*formulaic truth*) that cannot be rationalised in the system. For example, in the early years of independence many inconvenient reforms were carried through with little lifeworld legitimation and system integration – these were justified by Estonia's mythical belief in the supremacy of Western practices.

For the simplification of the system there is also an option learnt from Soviet modernity. The system may limit its rationalisation activities itself (in the help of the institutional routines that enforce "blind spots" to possible feedback from the lifeworld level, reflection). This opposition to the system will impose reflectivity practices at the lifeworld level that despite being based on the opposition, remain plain as they lack the variability offered by complexity in order to develop.

Estonian example

Twenty-five (25) years ago, Estonia moved from one modern communication system to another: from the disintegrated socialist bloc to Western capitalist modernity. In the system-theoretical meaning Estonia functioned in both the Soviet Union and functions in the European Union as a subordinate system, which means that its decision-making rights in reacting to the tensions of the lifeworld and forming supporting institutions were and are constrained, although in a different way.

The end of the Soviet period

The end of the Soviet period showed that environmental concern as well as any other concern is always a choice of a particular opposition. It is likely that among the issues that raised the anxiety at the end of the Soviet period the most important was Russification instead, *id est* the fear of the local lifeworld to loose its uniting routine through language. Routines are not questioned as far as they are not put in danger, as routines ease anxiety.

It may be that the Phosphorite War of the late 1980s broke out because the Soviet regime obstructed the learning of the social system (internal rationalising of the system), which created a distance between different functional and subordinate systems. The virtually unlimited power of the industry to dictate to the political-administrative system created too much uncertainty. The impact of production was not legitimised at the level of lifeworld (e.g. consumers and consumption were neither used nor legitimate in justification of environmental issues) during the Soviet time. Therefore, during the Soviet period the gap between public utterances (promise of progress) and information (pollution) became an independent theme of reflection, a link between individual observations. The relative homogeneity of the lifeworld amplified the formation of internal contradiction to the system progressively and improved the chances of the system's *unitas multiplex* to work in support of disintegration. The integration of the Estonian subordinate system (the system must not be equated to the state) and local lifeworld strengthened. While previously the local industry had been manoeuvring between the interests of the union and local legitimation, during the Phosphorite War the chemical industry united with the local opposition and started to exaggerate the impact of phosphorite mining in their reports submitted to Moscow (Sikk 2013). Such institutional behaviour contributed substantially to the political turbulence together with other global changes (the fall of the Berlin Wall, the impact of the Chernobyl disaster, 'glasnost', and the overall rise of concern about the environment). Thus, the simplification of the social system was supported by the low level of internal integration, homogeneity of the lifeworld, rationalisation practices allowing double standards and the inability of the system to find a suitable outlet for the growing anxiety of individuals.

Transition period

Transformation from one system (USSR) to another (EU) was not smooth. It occurred in stages, by adapting and translating. In the 1990s, which are also called 'the mythical stage' (Lauristin and Vihalemm 1997), the system was simplified, which in turn enabled enormous changes. With the disappearance of the framework of the old system (except for the opposition to the USSR) what became important were the projections of the pre-war Republic of Estonia and the illusions of Western society, of which only a few ex-pats who had returned to Estonia had a clearer idea. Although the legitimisation of the new system was based on Habermasian linguistic discussions of the main values of the system, the discussions could not consider the experience of living in the West (in order to find suitable adaptation mechanisms). Discord between practices and their legitimising meanings increased after the accession to the EU. While in the 1990s the 'bottom-up' justification was used during integration into Europe (the requirements of the EU system remained on paper, instead of being implemented in policies – deception at the level of utterance), the opposite occurred at the beginning of the new millennium: EU regulations and directives started to dominate. The EU requirements were enforced at the levels of both lifeworld and institutions. The enforcement was carried out through the development of functional systems following European practices, in particular with the financial support from the EU. The increasing complexity created more social tension in Estonia than in the West, where the consumerism that integrated the lifeworld and the system developed gradually. The in-compatibility of the justification of the integration of the superior system and the lifeworld prevented the system from learning from traditions and supported the disembedding (notion coined by Giddens, 1990) of the shared experience that had unacknowledged united local individuals.

For example the waste recollection practices were implemented in a way that did not match the practices of the people (low-density population and distant grand 'Euro' landfills). Today, an economically efficient method (sorting by marketing methods, not by the qualities of the material) is used for sorting waste. Recently built 'Euro' landfills have to compete with brand new thermal stations that use waste burning as an energy source. This has a message to the individuals that instead of waste separation and reduction they have to produce more waste in order to keep enterprises going (contradiction with common sense and Protestant ethics).

Present day

Although the integration into the EU meant that people had to be involved in decision-making and the environment had to be protected (which was also an acknowledged requirement in the lifeworld), it increased tension in the system. The rationale of lifeworld had to be taken into account but it did not match the

rationalisation system managed from-top-to bottom (Habermasian legitimation crisis). This means that the EU regulations on the protection of the environment have been transposed (the environmental paradigm) but their implementation (system memory) is still too strongly biased in favour of the business sector (if this were possible to measure).

Today, Estonia is a subordinate system of the EU, which itself is going through a major crisis and is increasingly less able to reduce its complexity through, for example, parliamentary elections.

Nowadays, the discussion of environmental issues is not acknowledged as being constrained in public communication. On the contrary, tight internal integration of the system supports the development and legitimisation of environmental issues in the lifeworld. On the other hand, the lifeworld integration is becoming more and more fragmented despite participation in consumerism also increasing homogeneity through practice pattern. However, the consumer culture does not link individuals unilaterally and it has so far not functioned as a political power.

II Why are individuals unable to converge around environmental issues?

In the world of today communication is usually presumed to be a linguistic act. However, people's experience with nature cannot depend on linguistics (e.g. by naming objects). Human action is regulated strongly by direct observation and reiteration of conduct, through linguistically rarely expressed knowledge. Experience and traditions act as a systematising component of interaction, though remaining a silent partner. These silent partners shape our time and space in order to create meaning. As the present complex world presumes high reflectivity, it needs also a high degree of abstraction. Although experience cannot be discussed without abstraction, the same fact decreases the information value of experience.

What is discussed in decision-making is usually not the practical experience of the micro-level, but discursive ideas. Those are based on the opposition to the challenges of a system (rationalisation problems) and exactly in such opposition the interaction of individuals becomes meaningful for the system. This enables the system to develop policies that can be used to mitigate the perceived anxiety of people (external experts, compensatory development projects) or to neutralise the anxiety through silence or labelling in case its rationalisation exceeds the capabilities of systems complexity.

The development of the social system and methods of abstraction do not allow one to react to the perceived anxiety in the lifeworld in the way one desires. The system integration and lifeworld meet in an accelerating time and unifying space. This decreases the ability to create meanings. Dependency relations may be born which are unable to make the changes necessary for the

integration of the system (sub-consciousness, interaction and the system do not meet in meaning-creation).

Anxiety is triggered by active silence, i.e. a situation where something should but is not discussed. Anxiety cannot be denied because denial makes it only stronger. As individuals can ask questions about the causes of anxiety only through the world that is open to them (one cannot relate to sub-consciousness), there are also particular practices for finding solutions. These might not be enough, but it is impossible to be anxious all the time.

The system uses anxiety by constructing risks and proposing solutions, by describing the risks as environmental or food hazards, technological risks or the risk of poverty. Anxiety enters the system of reproducing itself – the economic system is rationalising the risks, often through the scientific and other systems, by bringing new products to the market, designed to neutralise the risks, and by giving labels to the relevant practices (sustainable, 'eco'). The political-administrative system legitimises anxiety (sustainable development), providing the economic system with input but failing to reduce anxiety. Anxiety creates new cultural topics, obtained from the increasingly fragmented world – communication cannot be stopped. Thus, anxiety is directed to increasingly complex possibilities of the system, while the integration of the system and lifeworld is linked by successfully irresponsive meta-concepts. For example, while individuals have to deal with very different personal financial risks (life insurance, loan insurance, pension schemes, etc.), the irrationality of everyday life is justified by the meta-need for 'winning the trust of markets'.

The plurality of risk communications increases in line with society becoming more complex, exceeding the ability of the audience to receive the communication. Individuals' general relationships with society contextualises the way they create strategies to manage environmental risks and uncertain situations: which risk messages should I pay attention to if there are so many and they are so difficult to implement without contradictions? Therefore, the risk strategies used by individuals become more varied. There is still something that can unite individuals in a complex world of risks. Since more often than not institutionally defined risks and their solutions cannot alleviate the anxiety of individuals, it is opposition to institutional risk communication in itself that can unite people.

The perceived anxiety about environmental risks does not necessarily match the solutions offered by institutions and institutional predetermination may prevent individuals from seeking other solutions that are more appropriate in a given situation. Anxiety and tension is expressed at the emotional level where an emotion often reflects the conflict between the offered solution and its unsuitability in the specific context, but offering no solutions by itself. The lexicon and set of rules used by institutions lack the means for dealing with emotions and 'translating' individual solutions into universal solutions. While in the past individuals could rely on shared experience, nowadays shared

experience may be related to a failure of the system, i.e. individuals may be united by opposition to institutional risk communication.

Individuals are incapable of translating the hidden temporal and spatial experience found in social relations into abstractly expressed communication, fragmentation of time and space that creates the conditions for concealing legitimation issues and distorting time and space in linguistic communication. At the same time, language creates an opportunity and temptation to conceal complex relations behind legitimate words (sustainable development, ecological, etc.), which enables the hiding of power games and the achieving of illusory consensus. Although at the level of utterance the feedback forms provided by the system legitimise the role of the citizen (participation practices), the informational level of public decisions indicates that the system is reproduced in the name of consumers.

It is true that communication is always distorting time and space and the relations within through abstraction; but in late modernity, declarative common interests and abstract meta-definitions prevail. Linguistic communication in a modern society enables us to disregard direct experience and links that give structure to time and space. Therefore, it is linguistically possible to create situations that are legitimate, yet impossible. An analysis of meta-concepts (article ON PLANNING, II) indicates that it is the economic system that is establishing the meta-definitions shaping power-relations – but individuals use them, not the economy. The system compresses time and space, in particular in the demand of the economic system in order to enable the reproduction of market relations. Here the individual's ability to manage systems claims in their lifeworld may fail (Habermasian concern), as systemic prescriptions to the individual do not take into account the time and space available to them (perceived scarcity of time, rise in tempo).

In order to decrease the influence of complexity and increase possibilities for possible converging, community relations should be promoted in order to help individuals find better joint solutions. Relations between various community members may pluralise the options of the systems the individuals may choose in coping with risk. The diminishing of shared knowledge, even if it is routine and something that the individuals are often not even aware of it, increases the need for discussion, which means that comprehensive knowledge/experience needs to be simplified, which in its turn will distort time and space. Developed community relations decrease the need for mutual reflectivity as the supporting intersection is already there. Furthermore, the development of relations with nature may offer a solution, as this diminishes the need to discuss practical experience and unconscious fear of it.

Estonian example

Despite the fact that the end of the Soviet period was characterised by exploitive practices, the public communications approach to nature was more humanitarian than at present – it supported the appreciation of direct nature relation and giving meaning to the relationship of man with nature. Similar shared experience was common to the practices of natural economy, although the meaning of nature behind them was not acknowledged. Although during the Soviet time nature united culturally oriented people it was not often the main topic for them. Nature conservation movement was just a less restricted opportunity for socialising and pursuing one's hobbies. This movement kept alive the discourse of opposition to Soviet powers. It is possible that these relations became the social resource to be used during the mobilising Phosphorite War.

Estonia's development towards Western modernity did not lead to the uniform distribution of environmental interest or concern (to replace previous shared direct nature experience). The experience-based and unacknowledged nature relations of Estonians decreased and the mediation of nature relations and fragmentation of solution seeking increased. Environmental issues are now communicated through other social relations, in particular through consumption (with late modernity nature steps back to society as environment (see Beck 1986/92, 1995). However, the time and space in these relations have shifted. For example, when in the Soviet era people's active relationship with nature was focussed on working on a personal allotment, present day 'communities of practice' are united by modern consumer culture, infrastructure and technology. Gardening is not a personal sphere anymore, but a practice of consuming global species, reshaping the soil and showing off. Moreover, the recollection practices that involved earlier culturally external domestic conduct and hidden spots in the courtyard, are today a matter of the lifestyle and social attitude. At the same time the frugality has been replaced by consumption.

The discussion about environmental issues is diversifying. For example, citizens' associations include so-called old-school protest movements, project organisations, sub-cultural and virtual communities, those based on personal preferences, consumer associations, etc. Although the accession to the EU has created various legitimised practices for involving individuals in decision-making, it seems that their opinions are still not taken into account sufficiently (Ehitusmaavarade... 2009). Although the perception of risk should be growing gradually in the course of the development of complexity, Estonian people have inherited it without local institutional reflection – through consumption and experience of travelling in developed countries. Environmental concern and perception of risk is a product of the types of population who are actively involved in social structure. They, also being active in the institutionalisation of risk, take part in the structuration of society around the risk, being more likely to be found in the position of those who win from the institutionalisation of risk (at least at the discursive level). This positions individuals against each other –

different risk perception that is related to the social position prevents them in finding common understanding about the social problems.

The objective of this paper was to identify the conditions required to ensure that communication of environmental issues through reproduction would not incrementalise but instead would enable individuals to find better solutions to environmental issues and risks at both personal and collective levels.

Although this task is almost a mission impossible, it can be concluded from the analysis that the incrementalisation of the system can be avoided with the help of fluctuations in the subordinate or functional systems, *id est*: with the help of the side effects of the enforced enlightenment itself. These fluctuations can be brought to life in several ways. The ruptures in individuals' routines of reflexivity may cause side effects that have an effect on a larger scale. This can't be intentional – although the individuals may know what they want and do, the result may turn out different when looking from a perspective. To have an effect, the fluctuation also needs a context of a widespread anxiety, which could support the formation of the lifeworld in its opposition to a new meaning frame. This new frame (like pollution) and lifeworld's opposition to it may lead a superior or subordinate system to reorganisation and rejuvenation.

In order to avoid incrementalisation, the system may also limit its action by avoiding possible feedback from the lifeworld level, despite the opposition that this causes. Institutionalised silence will support the converging of the lifeworld. This will lead the lifeworld to seek for new meaning frames. Periods of vacuum of meaning during the fluctuations period can be filled by the *other-reference* (*formulaic truth*) that is unfamiliar to the system. But *other-reference* may not always support individuals converging in the long run. In order to decrease the influence of complexity and increase possibilities for converging, community relations should be promoted in order to help individuals to find better joint solutions. The plurality of the late modern lifeworld will enable individuals to be more creative in the search for risk alleviation if brought together. But community relations and also direct nature relations will also help the individuals to diminish the need to discuss practical experience and unconscious fear. This will decrease the need for exhaustive communication.

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SUMMARY IN ESTONIAN

Keskkonnaprobleemide ja -riskide kommunikatsiooni kriitilise analüüsi probleeme

Töö eesmärgiks oli leida, milliseid tingimusi tuleks kujundada, et kommunikatsioon keskkonna üle läbi enda taastootmise ei inkrementaliseeruks, vaid võimaldaks indiviididel leida paremaid lahendusi keskkonnaprobleemidele ja -riskidele nii isiklikul kui kollektiivsel tasandil. Empiirilise analüüsi baasil, mis tugines Eesti viimase 25 aasta keskkonnaprobleemide ja -riskide kommunikatsiooni uuringutele, ilmnes hilismodernsusele omane keskkonnateemade killustatus ja probleemide komplekssus nii nende avaliku kirjelduse, neile institutsionaalsete lahenduste otsimise tasandil kui ka indiviidide elukogemuse ja institutsionaalsete lahenduste vastastikuse „tõlkimise" tasandil. Lähtudes süsteemi- ja strukturatsiooniteooriatest inspireeritud empiiriliste järelduste teoreetilisest analüüsist vastan püstitatud uurimisküsimustele, integreerides empiirilise ja teoreetilise analüüsi leiud.

I Miks ei paku keskkonnaküsimuste institutsionaliseerimine komplekses ühiskonnas tagasilöökideta lahendusi?

Eesti liikus 25 aasta eest ühest modernsest kommunikatsioonisüsteemist teise – lagunenud sotsialismileerist lääne kapitalistlikku modernsusesse. Nii Nõukogude kui Euroopa Liidus on Eesti süsteemiteoreetilises mõttes toiminud alluva süsteemina, mis tähendab, et süsteemi iseotsustusõigus eluilma pingetele reageerimisel ja seda toetavate institutsioonide kujundamisel on piiratud. Kui süsteemi integratsioon eeldab ennast legitimeerivat arutelu eluilma tasandil ja tugineb selles sõnastatud põhiväärtustele, siis alluva süsteemi sidusus sotsiaalse integratsiooniga on teistsugune. Luhmanni käsitluses ei saa kommunikatsioon sotsiaalses süsteemis lähtuda korraga kahte tüüpi võimusuhetest ega lahendada nendevahelist pinget – näiteks eri riike ühendava supersüsteemi ja rohujuuretasandi demokraatiast sündivate nõudmiste vahel. Erinevate sotsiaalsete süsteemide sidumine ilma üht teisesse "sulandamata" on võimalik vaatepunkte ajas-ruumis vahetades. Näiteks on Eesti institutsioonid kord ELi kliimapoliitikaga ühes paadis, kord kaitsevad jälle kohaliku energiatööstuse huve – mõlemat korraga teha on võimatu, kuigi seda on võimalik lingvistiliste lausungite abil välja mängida. Giddensi strukturatsiooniteooria tuletab meelde, et kõrvaltvaates kritiseeritavat ja problemaatilise tulemusega tegevust viivad oma igapäevastes praktikates ellu reaalsed inimesed. Et rutiniseeritud tegevuses peituv tähendus on indiviidile üldjuhul antud, rakendab indiviid diskursiivset potentsiaali pigem talle avanevas kommunikatsioonis nähtavate "teiste" analüüsimiseks. Ühiskonna eri institutsioone kujundavatel indiviididel on oma rutiniseeritud tegevuste kõrval seega ka võimalus oma rutiine vastavalt tajutud

ärevusele "teiste" seas ümber kujundada, väga keeruline aga iseennast nö problemaatilise indiviidina pildist välja lõigata. Valikuid selles, millistele ärevusnootidele reageerida, kujundavad indiviidi jaoks üheltpoolt välja-kujunenud (võimu)suhted, teisalt aga ka isiklik aeg ja ruum. Mitut tegevust korraga teha ja mitmes kohas viibida on keeruline. Et ärevusttekitavate kommunikatsioonide üle otsustamine toimub fragmenteerunud ühiskonnas üldjuhul ükshaaval ja eraldiseisvalt, kuigi eri osapoolte kommunikatsioonide "nõudmised" on simultaansed, muutuvad võimalikuks ka nö topeltstandardid – otsus on langetatud ühe võimustruktuuri kasuks, kuid lausungiliselt justkui teise või mõlema huvides. Sellised kunstlikud topeltstandardid võimaldavad hoida ühiskonna identiteeti eluilmas elus ka siis, kui süsteemi kommunikatsioonis on see kasutusel üksnes deklaratiivsel (lausungi, mitte informatsiooni) tasandil. Näiteks on põhiseaduse paragrahvis 5 rõhutatud keelelisel tasandil loodusvarade säästlikku kasutamist, kuigi reaalses elus võib selle mõjule anda vastandlikke hinnanguid.

Luhmann räägib sellest, et üks sotsiaalse süsteemi funktsioonisüsteem vajab arenguks teist – see pakub instrumentaliseerimiseks uue pidepunkti. Sellist funktsioonisüsteemide vastastikust toimet nimetab ta *unitas multiplexiks* – funktsioonisüsteemid ei sulandu üksteisesse, vaid loovad algsega võrreldes lihtsalt uusi erisusi. PLANEERIMISARTIKKEL (II) postuleerib selle üle, kas ka sotsiaalsetel institutsioonidel võib olla oma mälu, nö funktsioonisüsteemide koodihierarhia, mida rakendatakse sarnaste juhtumite puhul ühtviisi (Luhmanni vaates ei pruugi olla see nii võimalik kui Giddensi omas, sest indiviidide rutiniseeritud tegevus võiks sellist sisseharjunud kodeerituse eeldust kanda). Komplekses ühiskonnas toimuvatest aruteludest sündiv rutiinide ohustamine ja traditsiooni lõhkumine võib põhimõtteliselt tuua kaasa fluktuatsioone nii funktsiooni- (nagu poliitika, õigus, teadus, haridus, majandus...) kui ala-süsteemides, millel on potentsiaal muuta süsteemi taastootmise viiside hetkelist kulgu läbi selle, et ootamatult toimub palju sarnase funktsiooni- või alasüsteemi kasuks tehtud otsuseid. Kui sotsiaalne süsteem võib rakendada sisemise ratsionaalsuse säilitamiseks kommunikatsiooni piiramist (nö pimepunktid), siis võib ta seda rakendada ka mõne oma alasüsteemi suhtes ja vastupidi (mis võis olla fosforiidisõja kontekst), kuigi olukord peaks selle võimaluse justkui välistama. Näiteks on võimalik, et alluv süsteem avab end vastavalt eluilmas jagatud pingetele kesksüsteemi vastandsüsteemina, valides vastandumise alu-seks mõne avalikult kommunikeeritud, päevakorras oleva teema (russifitseeri-mine, Pandivere veevarude ohustatus).

Näiteks 1980. aastate lõpu fosforiidisõda puhkes ehk seetõttu, et nõukogude süsteem piiras sotsiaalse süsteemi õppimist (süsteemi sisemist ratsionaliseeri-mist eluilma suhtes), mis lõi liigse distantsi erinevate funktsiooni- ja ala-süsteemide vahele. Tootmisjõudude sisuliselt piiramatu dikteerimisvõimalus poliitilis-administratiivse süsteemi suhtes süstis ühiskonda liialt palju määramatust. Tootmisega kaasnevad mõjud jäeti erinevalt tänasest päevast eluilma tasandil legitimeerimata (nt tarbijakultuuri abil). Fosforiidisõja ajal

polnud tarbija ja tarbimine keskkonnamõjusid õigustava tähendusena ei kehtiv ega kasutusel. Selline sidustamatus legitimatsioonis muutis nõukogude süsteemis avalike lausungite ja informatsiooni vahelise lõhe omaette refleksiooniteemaks, individuaalseid vaatlusi ühendavaks lüliks. Eluilma suhteline homogeensus võimendas süsteemisisese vastanduse kujunemist, mistõttu Eesti iseolemist tunnustavad kommunikatsioonid said progresseeruvalt rohkem võimalusi. Nii tugevnes Eesti kui allsüsteemi ja eluilma vaheline integratsioon. Näiteks kui varem laveeris kohalik tööstus liidu huvide ja kohaliku legitimatsiooni vahel, siis fosforiidisõja ajal kasutas keemiatööstus ootamatuid võtteid, et fosforiidikaevandamise mõjude suurust Moskvale esitatavates andmetes forsseerida (Sikk 2013). Selline institutsionaalne mobiliseerumine soodustas ootamatult süsteemi turbulentsi, mis haakus samal ajal kulmineerunud teiste globaalsete muutustega (Berliini müüri langemine, Tšernobõli järelmõjud, NSVLi glasnostipoliitika, üleüldine keskkonnamure tõus). Üleüldine ärevuse tõus tõlgiti eluilma tasandil uuteks tähenduslikeks võimalusteks, millega süsteemivastasust toita. Seega soodustasid sotsiaalse süsteemi komplekssuse lihtsustumist süsteemi vähene sisemine integratsioon, eluilma homogeensus, topeltstandardeid toetavad ratsionaliseerimispraktikad ning süsteemi võimetus leida indiviidide kasvavale ärevusele sobivat maandajat.

Lülitumine ühest süsteemist (NSVL) teise (EL) ei kujunenud sulandudes, vaid etapiliselt kohandudes ja tõlkides. 1990. aastatel, mida on nimetatud ka nö müütiliseks staadiumiks (Lauristin ja Vihalemm 1997), toimus komplekssuse lihtsustamine. Süsteemsete raamide kadudes (va vastandus NSVLiga) muutusid oluliseks projitseeringud eelmisest Eesti Vabariigist ja kujutelmad läänelikust ühiskonnakorraldusest, milles elamise praktikatest oli ülevaade vähestel naasnud emigrantidel. Uue süsteemi legitimatsioon sündis küll habermaslikest süsteemi põhiväärtuste teemalistest lingvistilistest aruteludest, kuid neis jäi vajaka selge järeleproovitud jagatud kogemus. Dissonants praktikate ja neid legitimeerivate tähenduste vahel hakkas kiirenema Euroopa Liiduga liitumisel. Kui 1990. aastatel rakendati Euroopaga integreerumisel veel ulatuslikult nö alt-üles õigustamist (ELi süsteemi nõudeid püüti ära petta paberimajanduse tasandil ilma neid sisuliselt poliitikatesse sisse viimata, so lausungiline pettus), siis uuel aastatuhandel toimus sotsiaalse süsteemi kehtestumine juba vastupidi – domineerima jäid ELi regulatsioonid ja direktiivid. ELi nõuded kehtestati eluilma ja insitutsioonide tasandil. Kehtestamine toimus eeskätt läbi funktsioonisüsteemide arendamise Euroopa praktikate järgi, eriti läbi integreerimist soodustavate eurorahade. Ühildumine juba küpse süsteemiga põhjustas Eestis ilmselt rohkem sotsiaalseid pingeid kui läänes – viimases arenes süsteemi ja eluilma integreeriv tabijakultuur evolutsiooniliselt, Eestis sissetungina. Kesksüsteemi ja eluilma integratsiooni motiveeringu ühildamatus ilmselt ka takistas alluva süsteemi õppimist traditsioonist ja toetas pigem indiviide ühendava jagatud kogemuse lahtikiskumist (Giddensi disembedding, 1990).

Näiteks võeti Eesti hajaasustuse juures jäätmete liigiti kogumise jm praktikad üle viisil, millele oleks leidnud eluilma tõlgenduses kohasemaid viise. Täna

kasutatakse jäätmete liigitamiseks majanduslikult efektiivset lahendust, mille ühilduvus sotsiaalsete arusaamadega on nõrk (kogumine turustamisviiside, mitte materjali omaduste järgi). Hiljuti valminud europrügilad võistlevad veelgi hilisemate jäätmepõletusjaamadega have. Indiviidile saadab see sõnumi, et jäätmete eraldamise ja vähendamise asemel tuleks tal toota hoopis rohkem jäätmeid, et hoida ettevõtteid käigus. See on aga nö talupojamõistusega vastuolus.

Olgugi, et ELiga integreerumisega kaasnes vajadus hakata inimesi kaasama ja keskkonda kaitsma (mis oli ka eluilmas teadvustatud vajadus), pingestas see süsteemi – eluilma tasandi motivatsiooni tuli arvestada, kuid see ei ühildunud ülalt alla juhitava ratsionaliseerimissüsteemiga (habermasliku legitimatsioonikriisi käsitluses). Seetõttu on üle võetud küll ELi keskkonnakaitset puudutavad regulatsioonid (keskkondlik paradigma), kuid nende rakendamine (süsteemi mälu) on endiselt liialt tugevalt ärisektori poole kaldu.

Täna on Eesti alluva süsteemina integreeritud ELi süsteemi, mis on aga ise sügavas kriisis ja üha võimetum kompleksuse lihtsustamiseks (aja taandamiseks) näiteks läbi parlamendivalimiste. Süsteemi teadlikku lihtsustumist takistab indiviidide sotsialiseeritus tänasesse maailma, mille tähendused ja praktikad võimaldavad uut võimalikku ilmakorda mõtestada ainult läbi tänaste suhtlusolukordi legitimeerivate praktikate. See aga kasvatab süsteemi kompleksust veelgi. Selleks, et süsteem saaks lihtsustuda, peaks kehtestunud kommunikatsioonide kodeerimise võimuhierarhia ootuspärane järjestus segi paiskuma. See võimaldaks sündida ootamatutel institutsioonidel (küll mitte väljaspool sotsiaalse süsteemi toimimise loogikat), ja lihtsustada täna eksisteerivaid ainuvõimalikuna legitimeeritud praktikate kompleksust. Süsteemi turbulentsist ei saa sündida süsteemi täielikku lihtsustumist, sest tähendused saavad tekkida ainult kommunikatsioonis millegi suhtes. Näiteks sündis fosforiidisõja perioodi eluilma vastandusest sisend uuele kommunikatsioonisüsteemile – rahvuslus, omariiklus ja loodusväärtused said uues põhiseaduses (kui süsteemi põhiväärtustes) lausungilisel elik lingvistilisel tasandil keskse koha. Seega kandub süsteemi integratsioonil edasi eluilma mälu. Et praktikad püsivad endiselt elujõulistena ka riigikorra vahetumisel, kandub edasi ka institutsionaalne mälu. Tähenduslikku vaakumit võimaldab täita ka süsteemis mitteratsionaliseeritav *other-reference*. Näiteks õigustas eluilmas legitimeerimata reforme aastaid vastse Eesti Vabariigi (müütiline) usk lääne praktikate ülimuslikkusesse.

Täna pole keskkonnaküsimuste arutelu takistatud süsteemi vähese integratsiooni tõttu. Vastupidi, süsteemi tihe sisemine integratsioon võimaldab keskkonnaküsimuste käsitlemise kasvavat arengut ja kehtestumist eluilmas. Seeläbi toimub aga ka eluilma sisemine diferentseerumine, kuigi üha kasvav tarbijakultuuris osalemine toodab selles killustumuses ka homogeensust. Siiski ei seo tarbimine indiviide üheplaaniliselt (nö peidetud kollektiivne kogemus) ja seni pole tarbijakultuur suutnud tarbijaid ühendada ühiseks poliitiliseks jõuks.

II Miks ei suuda indiviidid enam koonduda keskkonnamure ümber?

Eesti on liikunud nõukogudeaegsest kogemusepõhiselt ja keskkondlikult teadvustamata loodussuhtelt hilismodernsesse ühiskonda, mida iseloomustab loodussuhte vahendatus ning keskkonnaprobleemide ning -riskide analüüsi ning lahenduste otsimise killustatus. Miks on siin vähenev kogemuslik keskkonnasuhe märgiline?

Kogemusest on keeruline rääkida ilma seda abstraheerimata. Kuigi primitiivses või traditsioonilises ühiskonnas on inimeste looduskogemus küll ka lingvistiliselt kantud (näiteks läbi objektide nimetamise), korrastab looduse suhtes tegutsemist ka kogemuslik, kuid keeleliselt väljendamata jäetav teadmine. Kogemus ja traditsioonid osalevad interaktsiooni süstematiseeriva komponendina, olgugi et vaikiva osapoolena. Vähemfragmenteerunud ühiskonnas on indiviididevahelise kommunikatsiooni objektiks just kogemusevaatluse vahendamine. Näiteks isegi kui nõukogude perioodi lõppu iseloomustas keskkonnateadvuse sotsiaalne paradigma (loodus kui tootmisressurss), siis avalikus kommunikatsioonis oli tänasega võrreldes tugevalt esindatud humanitaarne vaade loodusele – see toetas kogemusliku loodussuhte teadvustamist ja väärtustamist, inimese ja looduse vahelise suhte mõtestamist. Üsna sarnast jagatud looduskogemust täiendasid ka naturaalmajanduslikud praktikad. Kuigi nõukogude perioodil oli loodus kultuurihuviliste koondumise väljundiks, ei liitnud see inimesi köitva agenda, vaid rohkem vabamate sotsialiseerumisvõimaluste ja hobilise tegevuse pakkumise läbi. Võimalik, et just neist suhetest leiti sotsiaalne ressurss fosforiidisõja aegseks mobiliseerumiseks.

Eesti arenguga Lääne modernsuse suunas ei teki ühtlast teadvustatud keskkonnahuvi või -mure jaotumist (teadvustamata looduskogemuse asemele), vaid keskkonnaprobleemidest saadakse osa läbi muude suhete ühiskonnas, eeskätt läbi tarbimise (hilismodernsus toob keskkonna taas ühiskonda, vt Beck 1986/92, 1995). Tänase Eesti keskkonnaprobleemide ja -riskide avalikku kommunikatsiooni iseloomustab keskkondlik paradigma ning instrumentaliseeritud käsitlusviis, mis väljendub osaliselt tarbijaliku või teadusliku lähenemisena. Kui nõukogude inimese aktiivne suhe loodusega ei koondunud looduse kui probleemküsimuse ümber, vaid loodusega seotud praktikate ümber – ühise aiamaa eest hoolitsemine näiteks –, siis ka täna on üheks indiviidide koondumise aluseks nö praktikakogukonnad. Uus keskkonnasäästmist toetav infrastruktuur ja ülevõetud institutsioonid (sh ka väärtused, ühiskondlikud normid) toetavad indiviidide koondumist teistsuguse jagatud kogemuse ümber – selleks on erinevad tarbimispraktikad, mille sääst toimib tehnoloogial, mitte isiklikel loobumistel (protestantlik eetika). Keskkondliku paradigma normaliseerumisest võib rääkida just tänu liitumisele Euroopa Liiduga, mille nõudmisel rajatud sotsiotehnilised süsteemid on uued keskkonnapraktikad võimalikuks muutnud (enne ELiga liitumist oli vastuseis sotsiotehniliste süsteemide arendamisele väga tugev). Samas toetavad tänapäeval keskkonnasäästu ka praktikad, mis on põhjustatud majanduslikust nappusest.

Kitsamates niššides võib rääkida ka ökoloogilise paradigma tõusetumisest – toimub keskkonnaprobleemide mõtestamise mitmekesistumine. Näiteks on kodanikuühenduste seas võimalik leida nö vana kooli protestiliikumisi, projekt-organisatsioone, sub-kultuurilisi, maitse-eelistuslikke ja virtuaalseid kogukondi, tarbijate kooperatiive jm. Keskkonnasuhte muutumine tarbimiskeskseks haaras kõigepealt nooremaid põlvkondi, seejärel normaliseerudes ja hajudes üle eri vanuserühmade.

Ühiskonna võimekus käsitleda keskkonnaküsimusi nö terviklikult muutub läbi toimuva killustumise keerulisemaks, sest kommunikatsiooni "toimub" rohkem. Kuigi ELiga ühinemine on loonud indiviidide arvamuse otsustesse süstimiseks palju erinevaid legitimeeritud praktikaid, nähtub, et elanike arvamustega arvestamine on endiselt vähene (Ehitusmaavarade... 2009). See ei tähenda, et institutsioonide tasandil ei soovita otsida lahendusi alt-üles sõnastatud probleemidele. Lihtsalt sotsiaalse süsteemi areng ja abstraheerimisviisid ei võimalda enam reageerida eluilmas tajutud ärevusele sotsiaalselt soovitud moel.

Institutsioonidel puudub võimekus tõlkida ühiskondlikes suhetes peituvat aja ja ruumi kogemust abstraktselt väljendatavaks kommunikatsiooniks. Keel loob aga samas ka ahvatluse peita keerulisi suhteid legitiimsete sõnade taha (säästev areng, öko- jms) mis võimaldab edukalt realiseerida ja peita võimumänge ja saavutada näilist konsensust. Kuigi süsteemi pakutavad tagasisidevormid legitimeerivad lausungi tasandil indiviidi kodanikurolli (osaluspraktikad), näitab ühiskondlike otsuste informatsiooniline tasand, et süsteemi taastootmine toimub läbi tarbijarolli. Just hilismodernsele olukorrale iseloomulik aja ja ruumi kogemuste killustumine loob eeldused selliste legitimeerimisprobleemide peitmiseks ning aja ja ruumi moonutusteks lingvistilises suhtluses. Kommunikatsioon moonutab aega ja ruumi ja selles valitsevaid suhteid läbi abstraheerimise muidugi alati ja paratamatult, kuid hilismodernsuses saavad üha rohkem võimu deklaratiivsed ühishuvid ja abstraktsed metamõisted. Modernses ühiskonnas toimuvas lingvistilises kommunikatsioonis, milles peituvate võimusuhete tähenduslikkus avaneb vaid süsteemi ratsionaliseerimisprotsessides, on võimalik kogemuslikud aega ja ruumi struktureerivad elemendid ning sidemed kõrvale jätta. Lingvistiliselt on seega võimalik luua legitiimseid, kuigi võimatuid olukordi. Metamõistete analüüs (PLANEERIMISARTIKKEL, II) näitab, et võimusuhteid kujundavate metamõistete taga on majandussüsteem. Süsteemis surutakse aega ja ruumi kokku, eriti majandussüsteemi nõudel, et võimaldada turusuhete taastootmist. Siin aga võib alt vedada indiviidide kogemuslik oskus eluilmas talle esitatavaid süsteemi nõudeid ühildada (Habermasi mure), sest süsteemi ettekirjutused indiviidile ei võta arvesse talle kättesaadavat aega ja ruumi, suurendades (alateadvuslikult) tajutavat nappust.

Just kogemuslik keskkonnataju (sh taju selles keskkonnas toimetavatest inimestest) on see, mis ühendab tänaseid kogukondi, kes võitlevad arendusprotsesside vastu. Igal sellisel juhul on loodus erinev nagu ka inimeste kogemus sellega, põimudes keskselt ümber "kodu", elik emotsionaalselt tähendusliku kommunikatsioonide keskuse. Indiviidide interaktsiooni vaatepunkt lähtub enda

vastanduses süsteemiga süsteemis, muutudes süsteemile mõtestatavaks just läbi sellise vastanduse. See võimaldab süsteemis areneda poliitikail, mida on võimalik rakendada kohalike tajutud ärevuse legitiimseks maandamiseks (ekspertide sissetoomine, kogukonnaarenduslike kompensatsiooniobjektide rajamine) või neutraliseerida selle läbi vaikuse või sildistamiste.

Aktiivse vaikuse olukord, kus mõnest teemast peaks rääkima, aga mida ei ratsionaliseerita süsteemis, toodab ärevust. Ärevust ei saa eitada, sest siis muutub see veel tugevamaks. Et ka indiviidid ise ei suuda enda ärevuse põhjuste kohta küsimusi esitada muidu kui ainult läbi neile avaneva maailma (alateadvusega pole võimalik suhestuda), leiavad praktikad lahenduse selle kanaliseerimiseks – kogu aeg ei saa olla ärev. Süsteem värbab ärevust, konstrueerides riske ja pakkudes lahendusi, muutudes kultuurilises motiveeringus kas mõneks keskkonna- või toiduriskiks, tehnoloogiliseks või vaesusriskiks. Siit siseneb ärevus enda taastootmissüsteemi – majandussüsteem ratsionaliseerib need riskid, sageli läbi teadussüsteemi jt süsteemide, tulles turule täiendavate toodetega, mis on mõeldud nende riskide neutraliseerimiseks, defineerides ka vastavad praktikad (säästlik, öko). Poliitilis-administratiivne süsteem legitimeerib ärevuse (säästev areng), võimaldades niimoodi majandussüsteemile sisendi, kuid endiselt mitte ärevust ära kaotades. Ärevus loob endale üha killustatumaks muutuvast maailmast uusi kultuuriteemasid – kommunikatsioon ei saa ju lõppeda. Nii suundub ärevuse motiveeritus üha komplekssematesse süsteemsetesse võimalustesse, samal ajal kui süsteemi ja eluilma integratsiooni jäävad ühendama üha vähekontaktsemad metamõisted. Näiteks tuleb indiviididel lahendada väga erinevaid isiklikke finantsriske (elukindlustus, laenukaitse, pensionisambad jne), kuigi samal ajal õigustatakse igapäeva praktilist elu kujundavat irratsionaalsust metavajadusega "võita turgude usaldust".

Ühiskonna komplekssemaks muutudes kasvab ka riskisõnumite arvukus, mis ületab mingis mõttes ka vastuvõtjate suutlikkuse. Läbi üldise suhestumise ühiskonna ja looduskeskkonnaga kontekstualiseerivad indiviidid ka keskkonnariske ning loovad strateegiad tekkinud määratlematu olukorra mõtestamiseks: millele pöörata üldse tähelepanu riskisõnumite ülekülluses ja komplekssuses? Indiviidide riskistrateegiad on nende valikute tõttu üha varieeruvamad. Midagi saab selles komplekses riskimaailmas aga indiviide ka ühendada. Et institutsionaalselt määratletud riskid ja lahendused ei suuda sageli maandada indiviidide ärevust, siis just institutsionaalsetele riskisõnumitele vastandumine võib indiviide ühendada. Sellisteks kogukondadeks on näiteks vaktsineerimisvastaste virtuaalsed võrgustikud.

Indiviidide poolt tajutav ärevus keskkonnariskide pärast ei pruugi ühtida institutsionaalselt loodud võimalustega erinevate pingete maandamiseks ning institutsionaalne etteantus hakkab takistama ka individuaalsete, situatiivselt sobivate lahenduste otsimist. Ärevus ja pinge väljendub emotsionaalsel tasandil, kus emotsioon peegeldab konflikti pakutava lahenduse ja selle elukonteksti sobimatuse vahel, samas siiski võimalikke lahendusi mitte pakkudes. Institutsioonide sõnavaras ja reeglistikus puuduvad vahendid emotsioonide käsitle-

miseks ning individuaalsete lahenduste „tõlkimiseks" universaalsetesse lahendustesse. Kui varem aitas indiviide rutiinne jagatud kogemus, siis täna võib see jagatud kogemus tekkida ka situatiivselt, süsteemi tõrke või ohuolukordades, st indiviide võib ühendada ka institutsionaalsetele riskisõnumitele vastandumine.

Selleks, et aidata indiviididel ühiseid parimaid lahendusi leida, oleme soovitanud edendada kogukondlikke suhteid. Kogukonnasuhete arendamine võib pakkuda lahendusi institutsionaalsete vajaduste ja võimaluste ning indiviidide ärevuse vahelisel pingeväljal. Arvestades vähesemate ühiskondlike suhetega indiviidide arvukuse kasvu ja inimeste killustumist läbi erinevate infokeskkondade pole see lahendus siiski probleemitu. Jagatud, kuigi rutiniseeritud ja isegi mitte kõneaineseks oleva teadmuse vähenemine suurendab kogukondade omavahelise arutelu vajadust, mis tähendab, et terviklikum kogemus-teadmus tuleb lihtsustada, moonutades taas aega ja ruumi. Võimalik, et selle kogemuse ülekanne riskiolukorras eeldab liiga suurte barjääride ületamist.

Tähendus vajab tekkeks nihet ajas ja ruumis, aga kui süsteemi ja eluilma integratsiooni kokkupuutepunkt korrastab aja üha kiirenevas tempos ja ühtse loogika alusel korrastatud ruumis (tarbimispraktika), siis sünnivad sõltuvussuhted, mis ei suuda luua süsteemi integratsiooniks vajalikku muutust (alateadvus, interaktsioon ja süsteem ei kohtu tähendusloomes).

Töö eesmärgiks oli leida, milliseid tingimusi tuleks kujundada, et kommunikatsioon keskkonna üle läbi enda taastootmise ei inkrementaliseeruks, vaid võimaldaks indiviididel leida paremaid lahendusi keskkonnaprobleemidele ja -riskidele nii isiklikul kui kollektiivsel tasandil.

Kuigi sellise ülesande lahendamine on praktiliselt võimatu, on analüüsi põhjal siiski võimalik järeldada, et süsteemi inkrementaliseerumist aitavad vältida fluktuatsioonid süsteemi funktsiooni- või alasüsteemides – elik refleksiivse modernsuse enda kõrvalmõjud. Need fluktuatsioonid võivad juhtuda erinevatel viisidel. Katkestused indiviidi refleksioonirutiinides võivad põhjustada tagajärgi, millel on omakorda sotsiaalset keskkonda laiemalt ümberkujundav efekt. Reeglina pole see teadlik algatus – kuigi indiviidid võivad teada ja arvata, mida nad teevad, võib kõrvaltvaatajale nähtuda midagi muud. Et fluktuatsioon ei sumbuks, on vaja teatud ärevuse fooni, mis toetaks eluilma koondumist vastandusse valitud tähendusraami suhtes. See raamistus (kasvõi reostus) ja eluilma vastasseis võib viia süsteemi ümberorganiseerumise ja noorenemiseni.

Ärevuse fooni aitab luua eluilma tagasiside vähendamine, mis on süsteemi strateegia inkrementaliseerumise vältimiseks (olgugi, et see toob kaasa eluilma vastanduse süsteemi mõne institutsiooniga). Institutsionaliseeritud vaikus koondab eluilma, viie selle uue tähendusraami otsingutele. Siiski võib eluilma poolt pakutud täide tähenduslikule vaakumile olla ebapiisav, ebaõnnestunud. Et vähendada komplekssuse mõju ja suurendada indiviidide koondumise võimalusi, tuleks edendada kogukondlikke suhteid, mis aitaksid indiviididel jõuda ühises kommunikatsioonis loomingulisemate lahendusteni. Hilismodernne indiviidide eluilmade variatiivsus võib aidata riskide leevendamiseks loomingulisi

lahendusi luua. Kogukonna- ja loodussuhete arendamisel on ka varjatud pool – jagatud kogemus ja vahetu kontakt loodusega vähendab teatud määral vajadust tuua praktilist kogemust ja alateadlikku hirmu kommunikatsiooni objektiks. See vähendab kommunikatsiooni inkrementaliseerumise efekti vähemalt keskkonna-suhete plaanis.

APPENDICES

Appendix 1. Short explanation of the composition of clusters of social involvement

The clusters of social involvement that are referred to in the first chapter are based on the data bases of the social inquiries 'Me. The World. The Media' from the years 2002, 2005, 2008 and 2011. For the analysis the method of K-means is used from the SPSS package of statistics. The clusters of social involvement are constructed by the author based on aggregated variables, id est index variables that are composed of single variables. The aim of the composition of the index variables was to measure everyday routine practices of individuals: what do people claim they do with this kind of frequency and goal. There were six bigger groups of variables formed (aggregated variables) that describe different aspects of the relations between the individual and society:

The index of personal relations shows whether the person has in addition to their family circle also other supporting informal social relations. This index is composed of single variables that describe their social life and activeness of socialising with friends and relatives.

The index of consumerism describes the participation of the individual in society through the consumerist dimension. The single variables characterise the acknowledgement of their consumption choices (preferences for style, design, use of *fitness* and other services) and use of the signs of consumer culture (e.g. brands) in creating social relations.

Index of the participation in civic society describes the involvement of the respondent to society through participation in various different half-formal networks and unions from apartment societies to singing choirs. The index characterises first hand the variability of the networks and unions in which the individual takes part.

The index of nature relations expresses the relation with the natural environment through direct practical activities like gardening and hiking, but also through interest to nature (consumption of information about nature, books and films). This expresses the ability of involvement of the individual in society through direct perception of the environment that can also be partly institutionalised (e.g. organised camping in nature).

The index of participation at the elections shows the involvement of the respondent in society through traditional political participation and civic duty. The index involves data about participation in about the five latest elections.

The index of cultural participation expresses the involvement of individuals through expressive participation: music, dance, handicraft, art and photography etc.
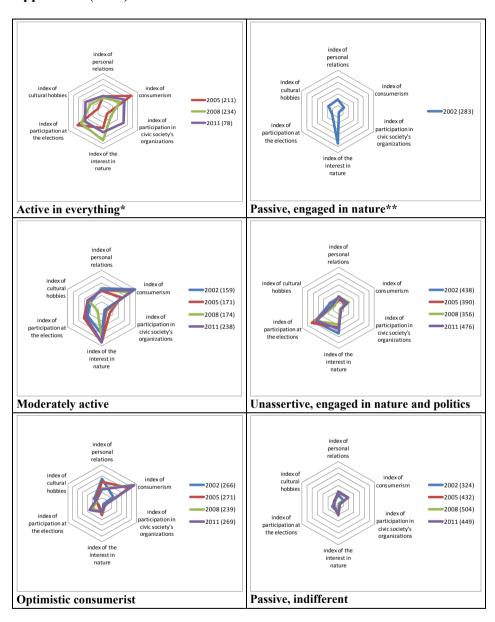
Table 1.1: Means of constitutive index variables of clusters in 2002, 2005, 2008, 2011

Years/index variables	Active in every-thing	Modera-tely active	Unassertive, engaged in nature and politics	Opti-mistic con-sumerist	Passive, in-different	ANOVA Sig.
2002						
Index of personal relations	2.08*	1.75	3.15	4.46	1.37	0.000
Index of consumerism	1.22*	1.23	5.91	2.33	1.01	0.000
Index of participation in civic society's organizations	.26*	.43	.55	.26	.12	0.000
Index of the interest in nature	5.48*	4.39	4.10	2.10	1.58	0.000
Index of participation at the elections	1.06*	4.66	2.45	.68	1.18	0.000
Index of cultural hobbies	1.81*	1.63	1.93	1.60	.68	0.000
2005						
Index of personal relations	1.45	1.80	2.80	2.71	3.86	0.000
Index of consumerism	1.74	1.84	5.71	3.44	5.56	0.000
Index of participation in civic society's organizations	.35	.31	.87	1.48	.61	0.000
Index of the interest in nature	3.37	2.05	3.11	5.45	2.12	0.000
Index of participation at the elections	5.21	.93	5.15	3.11	.81	0.000
Index of cultural hobbies	.94	.76	1.01	2.48	1.33	0.000
2008						
Index of personal relations	2.56	1.95	2.57	1.94	2.85	0.000
Index of consumerism	6.59	1.92	3.43	2.02	4.93	0.000
Index of participation in civic society's organizations	.63	.24	1.64	.37	.92	0.000
Index of the interest in nature	1.72	1.79	5.37	2.86	4.46	0.000
Index of participation at the elections	1.89	.66	4.45	4.52	.73	0.000
Index of cultural hobbies	1.08	.60	2.56	.74	2.28	0.000
2011						
Index of personal relations	2.85	2.77	2.05	2.50	1.96	0.000
Index of consumerism	4.37	5.54	1.77	6.49	1.86	0.000
Index of participation in civic society's organizations	4.18	.70	.50	.61	.29	0.000
Index of the interest in nature	3.88	5.30	3.62	1.60	1.93	0.000
Index of participation at the elections	3.66	2.78	4.38	2.54	.89	0.000
Index of cultural hobbies	3.55	2.36	1.17	1.19	.69	0.000

* The cluster "Active in everything" did not form before 2005. Instead, another cluster formed in the five-cluster solution that did not appear in 2005, 2008 and 2011. Thus the clusters in 2002 cannot be compared directly with the clusters in 2005, 2008 and 2011.

Appendix 1 (cont.).

Graph 1.1: Means of constitutive index variables of the same cluster in 2002, 2005, 2008 and 2011. The number of respondents belonging to the relevant cluster in different years is given in the brackets

* This cluster did not form in 2002
** This cluster formed only in 2002

Appendix 2. Cluster member's beliefs about the future, opinions about (global) environmental problems and the solutions to environmental problems.

Table 2.1: Life satisfaction, future optimism and trust in society. Means of single variables across the cluster groups and statistical significance or correlations. Highest means in the rows are marked with bold.

Variables (means)	Active in everything	Modera-tely active	Unassertive, engaged in nature and politics	Optimistic consumerist	Passive, in-different	ANOVA Sig.
Life satisfaction (4=high, 1=low)	**3.67**	3.33	3.10	3.40	2.91	0.000
Optimism towards the future (4=high, 1=low)	2.92	2.84	2.53	**3.18**	2.48	0.000
Evaluation of changes during last twenty years (4=positive, 1=negative)	**3.72**	3.52	3.32	3.39	2.98	0.000
Trust in the Estonian state (4=high, 1=low)	**3.70**	3.36	3.47	3.05	2.98	0.000
Trust in the civic society organizations (4=high, 1=low)	**3.61**	3.11	3.14	3.10	2.96	0.000
Trust towards entrepreneurs (4=high, 1=low)	**3.11**	2.87	2.83	2.94	2.61	0.000

Table 2.2: Opinions about (global) environmental problems and the solutions of environmental problems. Means of single variables across the cluster groups and statistical significance or correlations. Highest means in the rows are marked with bold.

Variables (means)	Active in everything	Modera-tely active	Unassertive, engaged in nature and politics	Optimistic consumerist	Passive, in-different	ANOVA Sig.
Concern about pesticides as a risk (1= no aware, 5=high risk)	**4.43**	4.31	4.17	4.05	3.81	0.000
Global epidemics as a risk (1= no aware, 5=high risk)	4.00	**4.22**	4.12	4.09	3.97	0.000
Food crisis, shortage of food as a risk (1= no aware, 5=high risk)	3.40	**3.57**	3.46	3.27	3.20	0.000
Catastrophes as a risk (storms, floods) (1= no aware, 5=high risk)	3.78	**3.88**	**3.82**	3.68	3.50	0.000
Global environmental condition is critical (natural resources, pollution, climate) and the person must restrict their activities (4=agree, 1=disagree)	3.04	**3.22**	2.93	2.90	2.73	0.000
Possibilities to preserve environment are clear and and easy to practice (4=agree, 1=disagree)	**2.60**	2.53	2.31	2.44	2.22	0.000
New energy sources will create a new world for future well-being (4 = agree, 1 = disagree)	**2.50**	2.40	2.18	**2.46**	2.18	0.000
In the future, a global agreement on the environmental-friendly economic management is in force and works (4 = agree, 1 = disagree)	**2.26**	2.17	1.82	1.94	1.64	0.000
How well prepared are the national institutions in order to prevent accidents in Estonia's main industrial sites, transport terminals, etc.? (1 = good 4 = poor)	2.58	2.66	**2.72**	2.66	2.84	0.000

Table 2.3: Belief in the solutions of environmental problems. Shares in percent of single variables across the cluster groups and statistical significance or correlations. Biggest shares in the rows are marked with bold.

Variables (means)	Active in everything	Modera-tely active	Unassertive, engaged in nature and politics	Optimistic consumerist	Passive, in-different	Sig. Cramer V
Is ready to buy green products even if they cost more	34%	**51%**	25%	41%	20%	0.000 .256
Is ready to cut down consumption, give up consumption rewards	**58%**	41%	35%	29%	27%	0.000 .158
What do you think people should do to avoid the (global) risks in the future?	46%	**52%**	47%	31%	37%	0.000 .154
Return to the traditional skills and natural way of life	**55%**	45%	42%	45%	33%	0.000 .121
What do you think people should do to avoid the (global) risks in the future?	27%	**31%**	29%	24%	19%	0.001 .108
Increase their skills in the use of new technologies, the last word of science	24%	38%	38%	32.5%	**50%**	0.000 .106

Appendix 3. Clusters' verbal description

Table 3.1: Clusters' short verbal description according to the correlations between cluster membership and other variables

	Active in everything	**Moderately active**	**Unassertive**	**Optimistic consumerist**	**Passive, indifferent**
Life satisfaction. Optimism/ pessimism about the personal and society's future. Overall emotion about social changes.	The highest satisfaction with personal life. Optimism in future above average, although it has fallen in the past ten years. Evaluates recent changes in society above average to be positive, to be glad about.	Moderate satisfaction with life. Optimist or noncommittal attitude towards the future, although optimism has fallen over time. Evaluates recent changes in society as widely welcomed.	Life satisfaction below average. Noncommittal attitude towards the future, anticipation of stability. In evaluation of recent changes of society noncommittal or slightly positive	Life satisfaction above average. Higher optimism in relation to future both at social as well as at personal level. In evaluation of recent changes noncommittal or slightly positive.	The lowest satisfaction with life. Disposition to future prevalently pessimistic. Perceives recent changes saddening. The proportion of indifferent response has increased remarkably in recent years.
Societal trust	The highest trust in the public, business as well as civic sector institutions.	Moderate trust to the actors of all three institutions.	Trust to public and civic sector institutions above average, moderate in business sector.	Trust in business sector, organisations above average, moderate in state and civic sector.	The lowest trust in the actors of the institutions of all three sectors
Personal concern about the global risks and environment	Moderate perception of risk, highest concern about food safety and general condition of the environment.	The most concerned about global risks and environmental problems.	Moderately worried about global risks and environment.	Concern about environment and global risks below the average.	The least worried about global risks and environment.

Appendix 3 (cont.).

	Active in everything	Moderately active	Unassertive	Optimistic consumerist	Passive, indifferent
Solutions to the global environ-mental risks	The highest belief in political, scientific-technological and other solutions.	Belief in political, scientific-technological and other solutions above average. Trust in local preventive measures of crisis below the average.	Moderate belief in global solutions to risk. Trust to local preventive measures of crisis is the highest.	Believes in scientific-technological solutions. Scepticism towards political solutions and regulation behaviour of human above average.	The weakest belief in political, scientific-technological and other solutions.
Personal readiness to change personal consumption practices	Higher willingness to the confinement of consumption habits, moderate preparedness to pay a higher price.	High willingness to buy higher priced products and to confine personal consumption.	Moderate readiness to change personal consumer practices.	Higher preparedness to buy higher priced products, lower to personal confinement.	The lowest preparedness to change consumer behaviour.
Individuals' possibilities to challenge global risks	The most convinced in the need to acquire new technological skills.	The most convinced in the need to return to traditional lifestyle.	Moderate belief in different possibilities.	Moderate belief in technology, less in the need to return to traditional lifestyle.	The lowest belief in civic convergence and action.

Appendix 4. Socio-demographic profiles of clusters in 2002, 2005 and 2011

Table 4.1: Age, gender and education. The biggest shares of certain socio-demographic sub-group are marked in bold. The column percentages may not add up as 100% because of rounding

Variables (means)	Years/ variables	Active in everything	Moderately active	Unassertive, engaged in nature and politics	Optimistic consumerist	Passive, in-different
age	**2002**					
	15–29	*	30%	4%	**76%**	27%
	30–44	*	**43%**	22%	20%	28%
	45–59	*	21%	**35%**	4%	25%
	60–74	*	6%	**39%**	0%	20%
	2005					
	15–29	21%	25%	6%	**63%**	33%
	30–44	**41%**	28%	20%	26%	25%
	45–59	27%	28%	33%	10%	26%
	60–74	10%	20%	**41%**	1%	15.5%
	2011					
	15–29	31%	26.5%	13%	**42.5%**	36%
	30–44	33%	31%	24%	30%	23%
	45–59	20.5%	29%	30%	24%	23%
	60–74	15%	13%	**33%**	3%	18%
gender	**2002**	*				
	male	*	44%	44.5%	**47%**	**47%**
	female	*	**56%**	55.5%	53%	53%
	2005	*				
	male	33%	36%	36%	43%	**54%**
	female	**67%**	64%	64%	57%	46%
	2011					
	male	40%	36%	36%	40.5%	**54%**
	female	60%	**64%**	**64%**	59.5%	46%
education	**2002**					
	Basic	*	9%	19%	30%	**31%**
	Secondary	*	54%	53%	55%	54%
	Higher	*	**37%**	28%	15%	15%
	2005					
	Basic	5%	13.5%	18.5%	20%	**28%**
	Secondary	44.5%	**63%**	53%	60.5%	57%
	Higher	**49%**	21%	26%	19%	11%
	2011					
	Basic	17%	15%	16%	13%	**32%**
	Secondary	36%	56%	57%	51%	57%
	Higher	**47%**	28%	28%	36%	12%

* the cluster formed since 2005.

Table 4.2: Ethnicity and urban-rural inhabitance. The biggest shares of certain socio-demographic sub-group are marked in bold. The column percentages do not add up as 100% because of rounding

Variables (means)	Years/ variables	Active in everything	Moderately active	Unassertive, engaged in nature and politics	Optimistic consumerist	Passive, in-different
ethnicity	**2002**	*				
	Estonian	*	73%	**84%**	65%	46%
	Russian or other	*	27%	16%	35%	**54%**
	2005					
	Estonian	76%	79%	**84%**	58%	58%
	Russian or other	24%	21%	16%	**42%**	**42%**
	2011					
	Estonian	**92%**	72%	85%	49%	53%
	Russian or other	8%	28%	15%	**51%**	**47%**
urban-rural inhabitance	**2002**					
	urban	*	83%	71%	85%	84%
	rural	*	17%	**29%**	15%	16%
	2005					
	urban	92%	77%	76%	89%	77.5%
	rural	8%	23%	24%	11%	22.5%
	2011					
	urban	50%	66%	67%	88%	73%
	rural	**50%**	34%	33%	12%	27%

* the cluster formed since 2005.

Appendix 4 (cont.).

Table 4.3: Changes in the shares of clusters 2002–2011

Clusters through years	Active in everything	Moderately active	Unassertive, engaged in nature and politics	Optimistic consumerist	Passive, indifferent
2002	*	*11%*	*30%*	*18%*	*22%*
2005	**14%**	**12%**	**26%**	**18%**	**29%**
2008	**16%**	**12%**	**24%**	**16%**	**33%**
2011	**5%**	**16%**	**32%**	**18%**	**30%**

* This cluster did not form in 2002. Instead, another cluster formed in the five-cluster solution that did not appear in 2005, 2008 and 2011. The 'disappeared' cluster was characterised by high scores in interest in nature but in low scores in all other index variables. Thus the clusters in 2002 cannot be compared directly with the clusters in 2005, 2008 and 2011, but in order to get some picture about the dynamic in time, the other clusters in 2002 are drawn here for some indirect juxtaposition.

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Keelteoskus:
eesti keel   emakeel
inglise keel   kõrgtase nii kõnes kui kirjas
vene keel   kesktase nii kõnes kui kirjas
saksa keel   algtase nii kõnes kui kirjas

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